THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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THE IRON AGE

New York, Thursday, February 22, 1906.

Modern Features of the United Otto Coke Oven.

The United Coke & Gas Company, New York, has been developing in recent years not only the Otto by-product coke oven itself, but also a number of details bearing on the charging, quenching and handling, which possess interesting features. From a work just issued from the press, entitled "A Short Treatise on the Destructive Distillation of Bituminous Coal, with Special Reference to the United Otto System of By-product Coke Ovens," we have selected the following data:

General Design.

The details of this type of the United Otto oven are shown in the cross section in Fig. 1, which also gives the arrangement of the coal conveyors, coal bin, pusher and quencher. The oven itself is a rectangular retort from 33 to 43 feet long, 7 to 9 feet high and 17 inches average width (with or without taper), the dimensions varying with the characteristics of the coal that is to be used. The retort walls, top and bottom, are composed of refractory material, and the masonry is supported on a steel and concrete substructure, so as to be entirely independent of the regenerative chambers below. This avoids the cracking of the oven walls and the consequent loss of gas liable to occur from the expansion and contraction of the heated regenerator walls beneath the oven structure. Access is also given to all parts of the oven for inspection and incidental repairs. The open substructure admits of a complete anchoring system joining the buckstays above and below, and holding the oven walls securely in place. The steel work of the substructure is properly protected from the heated brick work above, this protection also serving to retain the heat in the ovens themselves. The oven chamber is closed at either end by doors, as in the Otto-Hoffmann oven.

The construction of the oven walls is a point of vital importance. Shaped brick of the best grade of refractory material, of moderate size and simple design are used, complicated and irregular shapes and those of larger size being avoided as being more liable to cracks and distortions. The time-honored method of laboriously chipping bricks of uneven thickness to form an even course in laying the oven walls has been abandoned entirely and all cutting is done to exact dimensions by large grinding wheels, which economize the high priced masons' labor and result in a quality of workmanship far beyond anything previously considered possible. A practically gas tight wall of great strength is thus obtained.

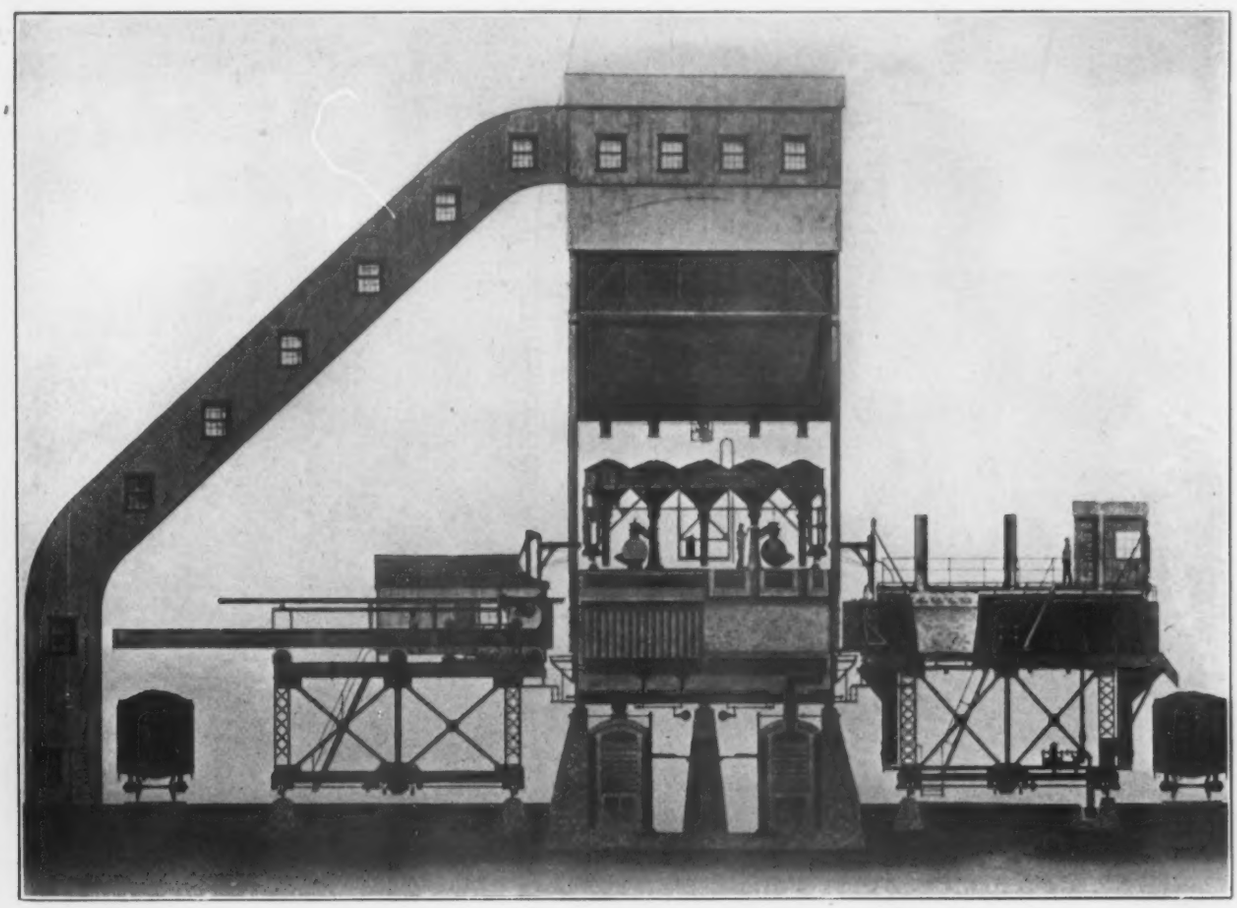


Fig. 1.—General Design of the United Otto By-Product Coke Oven.

The resistance of the wall is enhanced by the vertical flue system. As will be seen in Fig. 1 the heating flues run perpendicularly along that portion of the oven wall against which the coal can exert any pressure. The divisions between the flues form vertical strengthening ribs. This is of especial advantage when coals of only slightly shrinking or even expanding nature are to be coked, such as is the case with all low volatile coals.

The greater unsupported wall area necessarily exposed to the pressure exerted by such coal in a horizontal flue system is liable to result in a crushing in of the side walls and destruction of the oven. The strength of the United Otto vertical flue construction has been demonstrated by the long life of ovens charged with highly expanding coals.

A further advantage of the vertical flue system is its

ability to withstand the compression loads, due to the weight of the oven superstructure. This does away with the necessity of supporting walls built between the heating flue systems of each adjacent oven, and serving to carry the load of the superstructure. These have been found essential in the horizontal flue system, as might readily be expected from the weakness under compression of the thin horizontal flue walls extending the whole length of the oven. These division walls add to the cost of the masonry and to the length of the gas mains, railroad tracks, platforms and other equipment, as well as increasing the space required for a given block of ovens by about 65 per cent.

Heating System.

The heating of the ovens is accomplished by the use of gas returned from the condensing house through the two mains shown beneath the middle portion of the ovens in Fig. 1. The air for combustion is supplied to the regenerator by a fan, this method aiding in the equal distribution of the supply to each oven and reducing the amount of stack draft necessary. This not only allows the use of a smaller stack, but makes a more even balance of the pressure in the flues. The gas is admitted through a burner at each end and four or six burners in the bottom, placed symmetrically on each side of the middle line. This avoids the use of bottom burners above the regenerative chambers, where they are less easy of access for cleaning and regulation. At the same time it makes it possible to properly heat ovens up to 43 feet in length, instead of 33 feet, which was the limit of the Otto-Hoffmann oven heated with the end burners alone. This results in an increase of oven output of approximately 30 per cent. and a corresponding saving in the operating cost per ton of product.

The surface of the checker brick in the regenerators is so proportioned as to render the most efficient service in absorbing the heat from the waste gases.

Operation.

It is worthy of notice that from the time the coal is unloaded from the cars into the elevator until it is in the oven it is handled by machinery. The railroad cars usually employed are of the modern self dumping type and discharge into a hopper below the track, as shown in Fig. 1. An automatic feeder delivers the coal to a conveyor in regular amounts, thus preventing choking. If the coal is to be crushed, as is usually the case, this conveyor delivers it to the crusher and from there an elevator takes it to the bin above. If several varieties of coal are used the mixing is effected by suitable equipment before the coal enters the crusher. The discharge of the coal into the bin is regulated by an automatic device that insures a regular distribution. The discharge from the bin to the coal larry below is by gravity through a number of chutes and is controlled by a single lever, the larry being provided with stops, so that about the proper quantity of coal is drawn. This amount in turn may be checked by scales, with which the larry may be provided, so that an accurate weight of each coal charge is obtained. This is done by one man, who also operates the motors transferring the larry to the oven to be charged and dumps the coal into it through the separate spouts which correspond with openings into the oven top. Formerly the small larries were pushed by hand from a distance along an elevated track to the ovens. In more modern plants the operation is performed by the electrically operated charging larries, examples of which are illustrated in Fig. 2, showing the Sparrows Point plant and Fig. 3 the Duluth plant.

The mechanical leveler, which evens off the irregular surface of the coal as it is dropped into the oven, has done away with hand leveling, which was manual labor of the severest kind. The leveling bar is carried on the pusher and is operated through an opening in the oven door. It consists of a light steel beam, carrying a head of

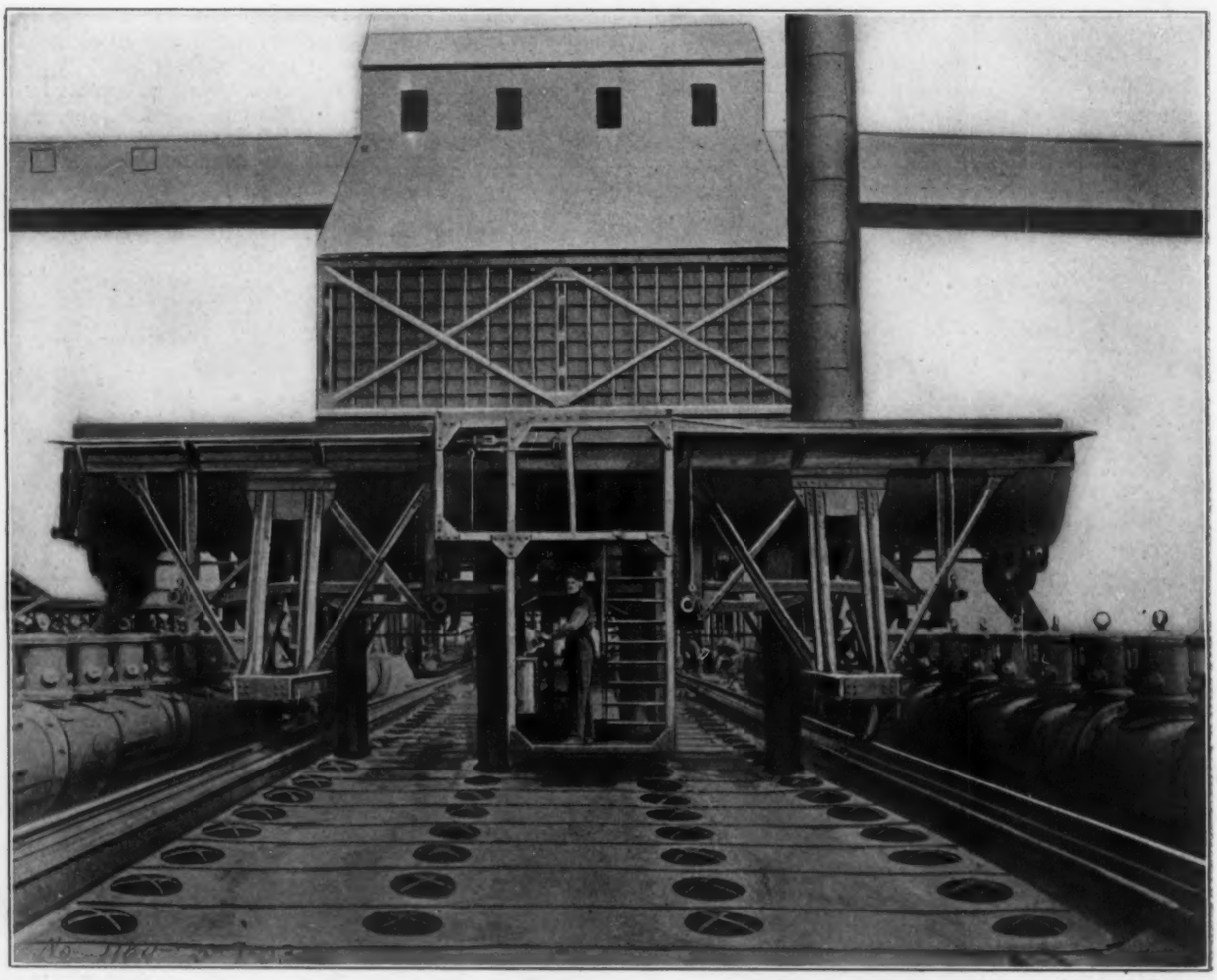


Fig. 2.—Electrically Operated Charging Larry at the Sparrows Point Plant.

special design, and provided with a rack on the under side, and is driven in and out of the oven by gears operated by a motor. The travel of the leveling head back and forth through the piles of coal serves to reduce it all to an even hight and tends to increase the actual amount of coal charged by eliminating voids. It is operated by the pusher man without loss of efficiency. This device is shown in Fig. 4. When this leveling is completed the oven is sealed up and the valve leading to the gas main is opened. There are two of these mains provided, the one for the rich gas and the other for the fuel gas. When the coking period has elapsed the ovens are disconnected from the gas mains, the doors are removed and the coke charge pushed out of the oven by the ram or pusher, shown on the left hand side.

Fig. 3.—Electrical Charging Larry at the Duluth Plant.

Coke Quenching.

The coke on being pushed from the oven may be received and quenched in one of several ways. In the older method of quenching a wharf or platform wide enough to take the whole charge of coke is built at the level of the oven floor, and when the coke is pushed out on it the mass is pulled down by hooks and quenched by a hose. After sufficient time is allowed for it to cool and drain it

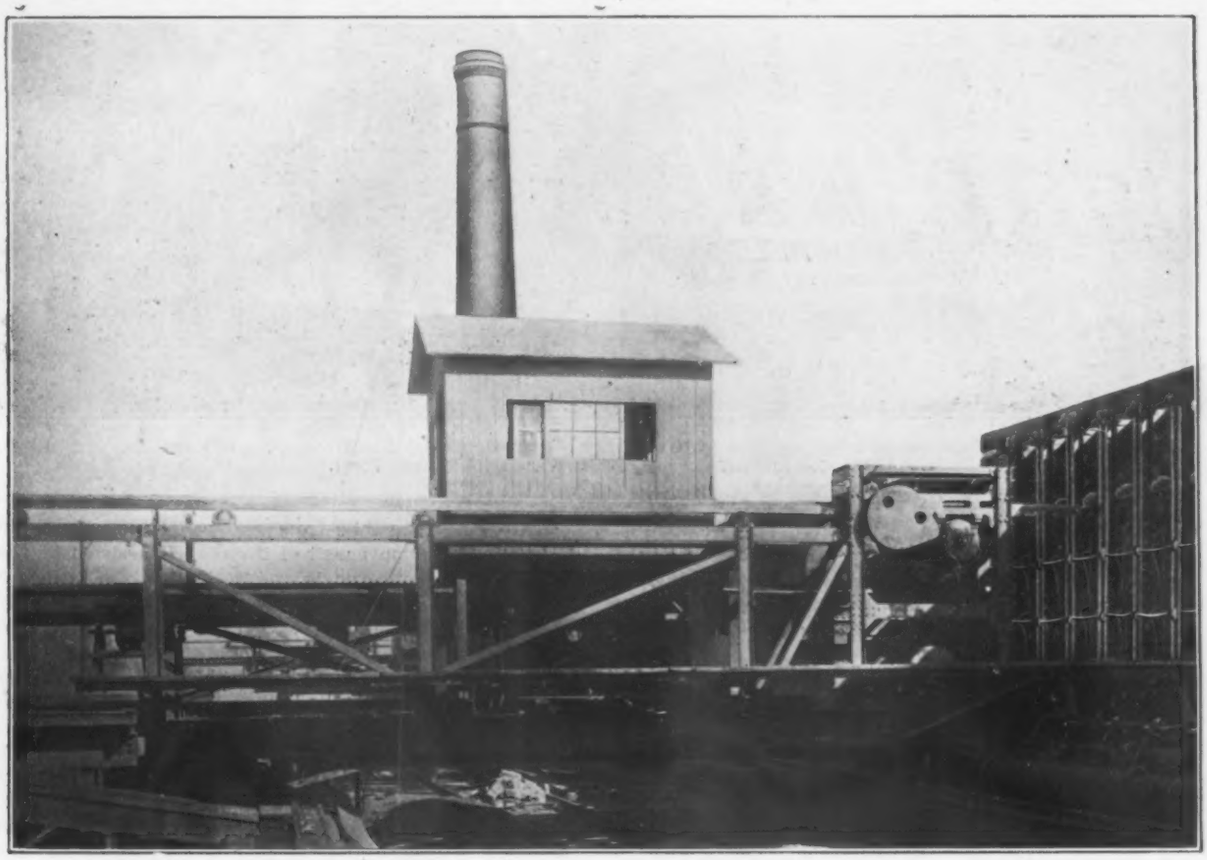


Fig. 4.—Leveling Machine at Lebanon, Pa.

is loaded by hand into cars standing on a depressed track at the outer edge of the wharf. This method of quenching has the advantage of simplicity and low initial cost and allows a selection of coke for various purposes, but is high in labor cost. It is practiced in nearly all German and English plants and in several plants in America. In some cases the approximately level platform is replaced by an inclined way.

In order to avoid the high labor cost of the wharf an inclined car has been used. The platform level with the oven floor is wide enough to serve as a gallery for the attendants, and beneath the outer edge of the gallery the upper edge of the car moves in a direction parallel with the length of the oven battery. The car itself is built of cast iron plates carried on a steel or timber frame work and runs on a railroad track below. It is operated by electricity and is long enough to take a whole charge of coke. When an oven is to be pushed it is brought to a position opposite the door and the coke pushed out across the gallery falls into one end of the car, being kept in by the sides and bottom gate. During the pushing operation the car is moved along so that the coke is distributed over the inclined bottom in an approximately even layer, which is cooled by water from a hose.

When the quenching is complete the door at the bottom of the slope is opened and the coke runs by gravity into the railroad car placed on the track adjoining. These cars effect a considerable saving in labor and handle the coke with rapidity, but suffer seriously from depreciation because of the alternate heating and cooling and the corrosion by the waste water, which becomes acid by the oxidation of part of the sulphur in the coke, and require special protection. They do not improve the appearance of the coke over that quenched on the wharf, as the coke is exposed to the air during the quenching, which causes it to be dark in color in both cases. A similar type of car is in successful operation at the Duluth plant and is shown in Fig. 5.

A form of coke quencher shown in Fig. 1, known as the Moore quencher, has been introduced. It consists of a rectangular receiver, of the approximate shape of an oven and large enough to easily contain the whole coke charge intact. Its walls are of cast iron and are of cellular construction, so as to admit of water cooling. The top and bottom are tightly covered in with cast iron plates and the ends are provided with closely fitting doors. A cast iron link conveyor, driven by a motor, runs on the bottom. The whole machine moves on rails parallel to the face of the oven battery and is operated by electric motors. When it is desired to push an oven of coke the quencher is placed exactly in front of it and connection is made by means of swinging doors and a drop bottom so as to guide the coke from the oven directly into the receptacle. The movement of the coke is assisted by the motion of the conveyor in the bottom of the quencher chamber.

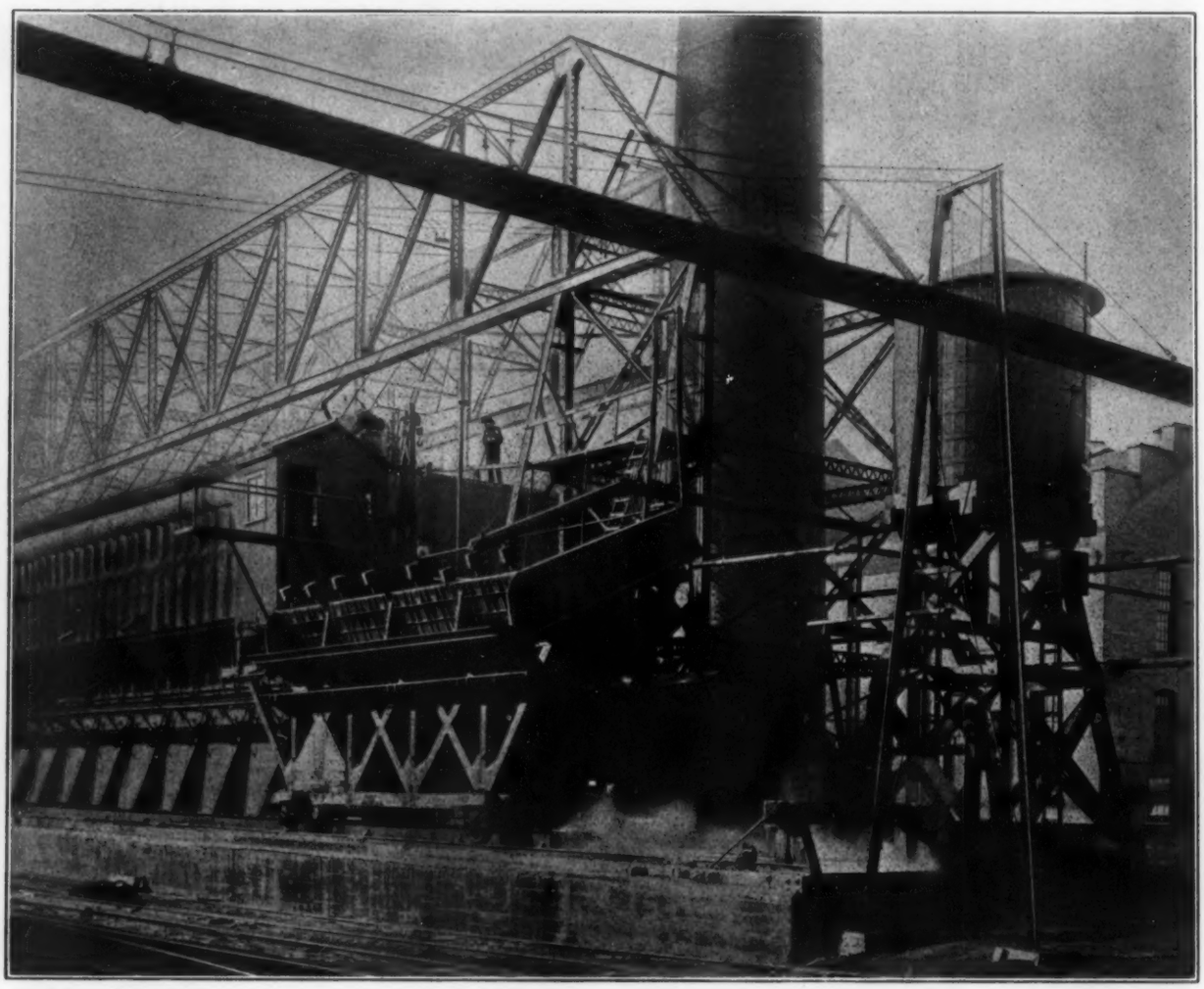


Fig. 5.—Inclined Coke Quenching Car at the Duluth Plant.

When the charge has been pushed from the oven into the quencher the doors are closed and the quenching water is admitted. The violent generation of steam is taken care of by the vertical stacks shown on the roof of the quencher. The quencher chamber is completely filled with steam and remains so until the charge is quenched, practically excluding the air, so that the silvery gray color of the coke is preserved, as in the beehive product. When the quenching is complete the door farthest from the ovens is opened and the coke is discharged into the railroad car below by operating the conveyor. The first machine of this type was installed at Sharon in 1903, three others being added with slight modifications in detail in 1904. Two were installed at Cambria in 1904 and two additional ones are now under construction for this plant, together with one for the Wyandotte plant.

Caking Fine Coal for Coking.

Advantages of Stamping and Compacting at By-Product Ovens.

BY ALFRED ERNST, CLEVELAND, OHIO.

Coke serves in the blast furnace as a medium for melting or for the production of heat and also for reduction—*i. e.*, to produce CO—while in the cupola the coke is used for producing high temperature by as nearly complete combustion as possible, or, in other words, to produce CO_2. CO is produced by $2C + 2O = 2CO$, and CO_2 is produced by $C + 2O = CO_2$. Therefore in producing CO double the amount of C is burned by the same amount of O as in producing CO_2. The physical structure of the coke, therefore, or its free surface, is of great importance in connection with its use in the blast furnace or cupola. Blast furnace coke, according to the above, should be porous in order to offer a large surface to the oxygen of the air—*i. e.*, to accelerate the production of CO, which will be of advantage for quick working of the furnace. The denser the coke the quicker it will burn. On account of its smaller volume it will offer less surface to the reducing action of O of the blast and will therefore produce more CO_2. Dense coke should be employed in the cupola for economic practice.

Friability and Its Drawbacks.

Blast furnace coke besides being porous should be hard, in order to resist the pressure of the ores resting on it in the blast furnace and also to resist the abrasive action of the ores in their downward motion. The resistance of coke to crushing, though, is not of such importance as its friability, as the weight exerted by the masses in the blast furnace per square inch of area amounts to only a fraction of the lowest crushing strength of coke. The friability of coke depends first on the condition of the cells, whether the walls of the cells are hard or soft, and, second, on the density of the coke—*i. e.*, the size of the cells—as with equal hardness a denser coke is less friable than porous coke. The friability, therefore, regulates the proportioning of different cokes. The denser the coke the larger pieces can be used, while porous coke under equal conditions requires smaller sizes.

The disadvantages of a friable coke are the losses by unloading and reloading. The forming of scaffolds in the blast furnace can be attributed to a great extent to friable coke, as the small pieces broken off by the action of the moving burden will form, together with the ore dust, dense masses which cannot be penetrated by the gases. Small particles of coke or coke dust will escape with the gases from the top of the furnace, while in other cases small pieces of coke caused by soft cell walls affect the combustion in the blast furnace. The coke in its downward motion is enveloped by a hot current of CO_2, which oxidizes the carbon. Hard coke withstands this action to a higher degree than soft coke. Every particle of coke used up by CO_2 in the upper part of the blast furnace causes double loss by decreasing the temperature at the spot where this action takes place, and by actual loss of coke, which should only be burned in front of the tuyeres.

Poorer Coals Used by Compacting.

In order to combine porosity with strength in coke required for blast furnace work its structure must show many but small cells, or the percentage of cellular space must be large, about 45 per cent. The Connellsville coke combines with its excellent chemical properties such desirable physical qualities that it must be considered "standard" for blast furnace practice. But with the immense annual increase of pig iron production the Connellsville coal fields and other good coking coal deposits are taxed to their utmost, and other grades of coal will have to be used for the manufacture of coke.

There are deposits containing millions of tons of coal high in volatile matter which can only be used as steam coal, as the coke produced from them in the beehive oven shows great porosity, fingery structure, low specific weight and soft cell walls, therefore a very friable coke which breaks up into small pieces and cannot be used for metallurgical purposes. If coked in the retort coke oven it shows the same structure, besides developing longitudinal shrinkage cracks. By stamping or compacting this coal into a cake before charging into the oven the porosity of the produced coke will be diminished and the density increased. The stamping does not reduce the development of cracks but rather increases it, as the same quantity of gas is distributed over a smaller volume and in proportion to this volume more cracks will form during the process of distillation.

It has been repeatedly proved that if this same coal is mixed with low volatile coal, stamped and charged into the by-product oven, it will produce porous coke with many small cells, without the fingery structure and free from shrinkage cracks. At the retort coke oven plant in Cleveland, Ohio, where this practice is followed, the coke produced has proved to be superior to Connellsville coke in respect to its physical properties.

Mixing Flue Dust with Coking Coal.

Experiments have been repeatedly conducted for mixing flue dust from blast furnaces with coal before charging into the coke oven, with a view to making stronger coke and also regaining a certain percentage of flue dust. The first experiments of this kind were made at Johnstown, Pa., in 1899, and since then at different places, until last year at the Cleveland ovens a run of six weeks was made on this mixture, using about 4 per cent. of flue dirt. While the coke actually showed a stronger structure, it is questionable whether the lower yield of by-products and the loss of the fixed carbon consumed in the ovens by the oxygen of the ores will be compensated for by the gain in utilizing the flue dirt.

By compacting or compressing the coal before charging we have therefore undisputed advantages, as certain kinds of coal are rendered suitable for coking which otherwise would not coke at all, and while it is only imperfectly understood how the process is effected by external mechanical influences the fact is that compacting the coal improves its coking qualities.

Output Increased by Caking the Coal.

Besides the great advantages of utilizing poor coking coals and improving the structure of coke as to hardness and density by stamping the coal before charging, the output of available coke is also increased, as the percentage of small coke and breeze is reduced to a minimum. While by compacting the coal can be reduced by 30 per cent. of its original volume, the output of an oven will only be increased from 5 to 10 per cent. A certain amount of clearance must be left between the cake and the oven walls, and the coking time will be increased slightly on account of the time required to evaporate the water which is mixed with the coal in order to give it more plasticity for compacting. It has been ascertained that it takes from two to three hours longer to coke a charge of stamped wet coal than the same volume of dry coal.

On account of the clearance between the cake and the oven walls the coal cakes less to the walls and the pushing out is greatly facilitated, besides a material decrease in wear and tear of the walls. The time required for charging an oven with a compacted cake is about one quarter of the time for top filling and leveling, while the labor amounts to the same in both cases.

Up to the present time the compacting of coal to produce a cake 14 inches wide, 6 feet high and 36 feet long, with sufficient stability to charge it into the by-product oven, has shown satisfactory results only by means of stamping. Experiments on a large scale were conducted to briquet coal to a cake of the above dimensions—that is, applying pressure on both sides—but have completely failed to produce any results whatever. The object of these experiments was to reduce time and labor for filling the box and compacting the coal, but the cumbersome and very expensive machinery constructed for the purpose failed to meet the requirements except as to the quick filling of the box. The writer has ascertained by experience that it requires about 500 pounds per square

inch to compress ¼ mesh crushed coal containing 12 per cent. moisture 30 per cent. of its volume.

There are different systems now in use for stamping coal into a cake, but the principle in all cases remains the same—*i. e.*, to produce the cake in a suitable charging box—filling the box in layers and pounding each layer by means of falling weights. The coal must be prepared for this process in order to secure proper results. In using poor coking coal containing high volatile matter it must be mixed with a certain percentage of low volatile coal, as mentioned before. These two kinds of coal should be crushed to ¼ mesh or smaller and deposited in separate bins, from which they are drawn off in proper proportion by means of measuring gates into a mixing machine or disintegrator and elevated to a bin with delivery openings of such shape as to suit the different systems of stamping.

A very important factor for the successful stamping operation is the thorough mixing of coal with a certain minimum percentage (about 8 to 10) of water. This operation should take place directly before filling the box, without an intermediate storage, in order to avoid difficulties which arise in the attempt to empty a bin filled with crushed wet coal. In cases where the coal must be washed on account of impurities there is no alternative but to deposit it in this wet state in a bin and draw direct into the stamping box, as the coal contains sufficient moisture for stamping. An even flow of coal in this case can only be secured by mechanical scraping devices.

Methods of Stamping.

The different systems of stamping are:

1. To employ two stationary stampers located close to the discharge chutes of the bin and a certain distance apart, equal to one-half of the length of the cake, with a charging box traversing underneath.

2. One or two traveling stampers and a stationary box.

3. Multiple stampers of sufficient number, the total area of which equals nearly the horizontal cross section of the cake and a stationary box.

The stamping station is either located at the end of the pusher track or parallel in front of it, naturally in close connection to the coal bin. The coal is filled into the box over the top by means of two revolving gates, the box traversing back and forth in the first case, where stationary stampers are used. In the second case, with traveling stampers, the box is either filled by means of a traveling bucket attached to the stamper carriage or by a scraper conveyor and chute running the whole length and parallel to the box, or by a scraper bar attached to the stamper frame and scraping the coal out of a slot in the bin. In the third case, using multiple stampers, the box is filled by a rotating feeding barrel of the length of the cake, provided with a segmental pocket the cubical content of which equals a layer of coal in the box. The box is filled in several layers and the layers stamped in succession.

The stampers, either stationary or mounted on a carriage, consist generally of plain steel bars, flat, square, round or of I beam shape, or toothed racks, and are provided at one end with a steel shoe 12 to 24 inches long, of a width corresponding to the width of the cake and weighing 250 to 300 pounds. The engaging and disengaging of this lifting bar is accomplished by different devices, as friction cam rollers, screw wedges, pawls or by electro magnets. The stroke is constant, 18 inches, and the hight of the stamper adjusts itself as the level of the coal in the charging box rises, the blow exerted being therefore constant. The stampers generally have a speed of from 60 to 70 strokes per minute. Means are provided for fixing the stampers securely in the highest position to permit of the removal of the charging box after a cake is stamped.

An efficient and complete arrangement is probably that in which two stampers the proper distance apart are mounted on a movable carriage traversing a track over the charging box. This carriage is provided with a rigid scraper bar, which delivers the dry coal from the bin into two mixing machines for mixing coal with water, also located on the carriage, which deposit the coal by means of their paddle screw shafts in front of each stamper in the box.

The System of Multiple Stampers.

Very quick work can be accomplished by multiple stampers, as a cake of coal 14 inches wide, 6 feet high and 36 feet long can be stamped in from 10 to 12 minutes. These stampers, sufficient in number to fill the length of the charging box, are suspended from an overhead frame work, which has a vertical reciprocating motion. Each individual stamper is held to this frame by means of an electro magnet suspended from it, the electric connection being made to a revolving switch located at the operator's stand. Contacts are made in such a manner as to break the circuit of each magnet successively, thus allowing the stampers to fall one after the other. When all the stampers have dropped the movable frame is lowered by means of a bell crank arrangement until all the stamper tops are in contact with the magnets, when the whole system is raised to its uppermost position. The lifting mechanism is provided with a device to raise the stampers to the required hights. The first layer of coal in the box is generally 24 inches, and all following about 12 inches high, and each layer stamped until the cake has sufficient stability to be charged into the coke oven. This system is successfully employed at the by-product coke plant in Cleveland, Ohio.

The charging box either travels direct on the coke pusher tracks in front of the ovens or is transferred to a special car running on the pusher tracks or to a platform attached to the coke pushing machine, depending upon the system of stamping employed and upon the location of the coal bin in reference to the batteries of the ovens.

Charging the Cake Into the Oven.

A coal charging box is provided, with a movable bottom or peel of sufficient strength to withstand the constant pounding of the stampers and a powerful mechanism for running the peel with the cake of coal into the oven. This operation must be performed as smoothly as possible, as any vibration will tend to break the cake. The sides are built up of heavy steel plates properly braced, as there is an immense strain exerted on them during the stamping operation, and are provided with a device for opening, as the cake before moving out of the box must clear the sides. In order to accomplish this the sides of the box are supported by short links with pin joints, attached to the side posts of the solid frame work of the machine. They are also provided with vertical adjustments. To the lower corner of each side plate there is fastened a pin and roller which engages with a cam on either side of the peel. When the peel is set in motion it pushes forward on the sides, causing them to rotate about their several points of support, thus relieving the cake of coal. The cams on the peel on the return engage with the pins on the rear end of the side plates and draw these into their original position, locking them.

The box is provided with a rigid front door, firmly locked in order to prevent any vibration or any deterioration of the cake during the process of stamping, and with a movable rear door which follows the rear end of the cake into the oven, disengaging automatically in order to avoid any labor in front of the hot ovens.

The charging is done by running the peel on which the cake rests into the oven, lowering the oven door and withdrawing the peel, thus stripping the cake from the peel.

Care must be taken to relieve the pressure of the cake against the door fastenings and buck staves of the oven when stripping, by bracing the oven doors at that time against the front end of the charging machine. One set of stampers and one charging box can easily supply 60 ovens for 24 hours' coking time, and two operators are required to manipulate these machines.

The Merchants' and Manufacturers' Association of Pittsburgh held its annual banquet at the Hotel Schenley, February 12. Among the speakers was Eugene N. Foss of the B. F. Sturtevant Company, Boston, whose subject was "Our Place in the World's Markets." The address was a strong argument in favor of reciprocity with other countries.

The Dyblie Reversing Valve.

The reversing valve shown in the accompanying illustrations is adapted to open hearth, soaking pit and similar furnace installations. It differs radically from most of those now in use and possesses interesting features. Its place is between the gas producer, or source of air supply, and the furnace; if both gas and air are employed of course two valves will be necessary. Its purpose is to automatically alternate the supply of gas or air from one end to the other of the furnace.

This valve was developed some time since by J. A. Dyblie, chief engineer of the Joliet Works of the Illinois Steel Company. The first valve has now been in satisfactory and constant use at the company's works for about five years, with only trifling repairs. A number of other valves of the type have been in use at the same works for more than two years with no repairs whatever, and the company is to install 48 additional valves as a result of its experience. The selling rights of the valve have now been acquired by the Morgan Construction Company, Worcester, Mass., which will offer it commercially. The type has been adopted for the open hearth plant of Milliken Bros., Staten Island.

Figs. 1 and 2 show a plan and elevation of the valve in one of the running positions. Fig. 3 shows the valve raised and turned ready to drop into its water seal to reverse the path of the gases from that shown in the preceding figures. The furnace, stack and gas, or air, flues are led up to a group of four openings forming the quadrants of a circle. In Fig. 1 openings A and B are connected to the furnace, C to the stack and D to either the gas or air supply. In a valve of this type there is no overload flue connection whatever. Over the openings to these flues is placed an inverted cylindrical box, provided with a single partition running across on a diameter, as at E, Fig. 2. The edges of the box and its partition dip into a water seal casting, F, preventing any escape of gases to the outside air. With the valve in the position shown in Figs. 1 and 2 it will be seen that there is a free opening between ports A and D, and between C and B, consequently the passage of the gas or air will be from D to A, thence into the furnace, returning through B to C and thence into the stack. If, however, the valve is turned through an arc of 90 degrees, so that its partition rests along the line T T, Fig. 1, the passage of the gas or air would be from D to B and thence from the furnace through A and C to the stack.

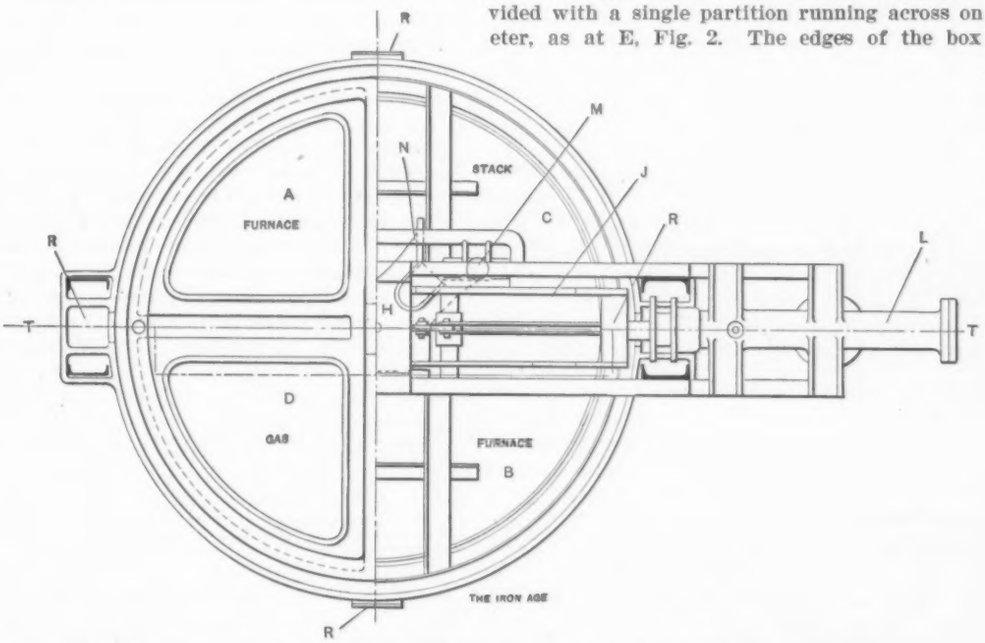


Fig. 1.—Plan of the Dyblie Reversing Valve, Showing It in One of the Running Positions.

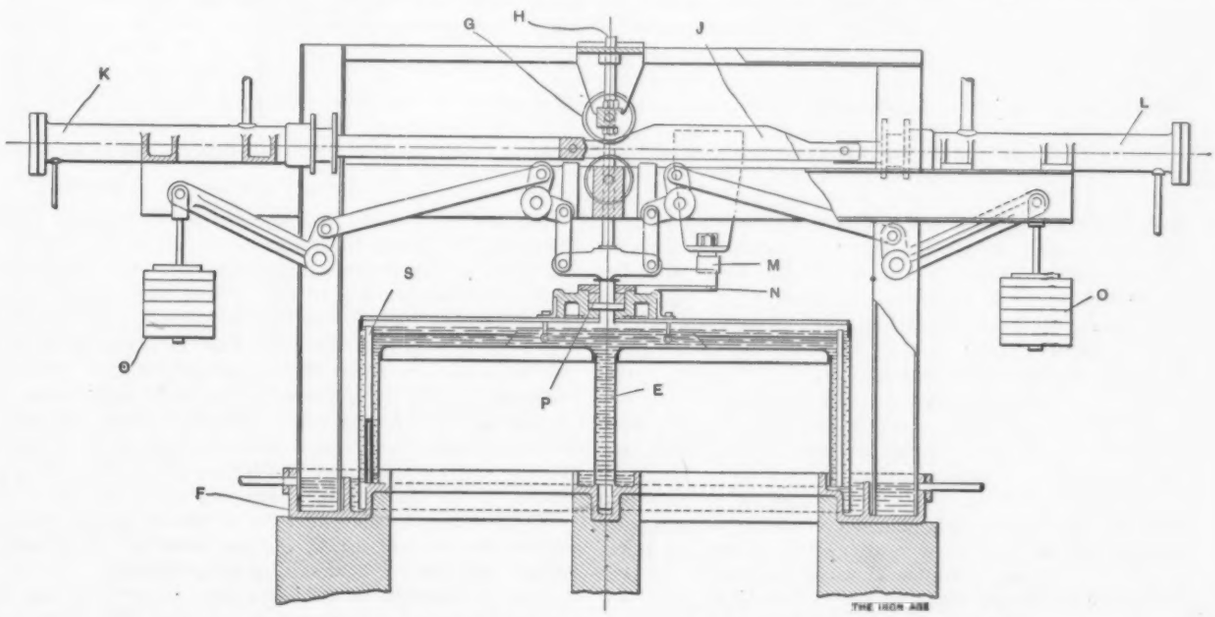


Fig. 2.—Elevation of the Dyblie Reversing Valve, Showing It in One of the Running Positions.

To reverse the valve it is necessary to raise the valve body sufficiently to permit the center partition to clear the edges of the water seal before the valve is turned, and consequently the edges of the partition are made shorter than the lips at the circumference, as shown in

Fig. 3, to permit the turning of the valve without breaking the outside seal. This is accomplished by a simple mechanism. The weight of the valve is borne by the wheels G attached to the spindle H, which is arranged to permit free vertical movement. The wheels G ride on cam bars J, which are operated by two cylinders K and L.

It will be seen in Fig. 2 that if the bars J are pushed toward the left the wheel will ride up the cam and the whole valve will be lifted. The turning of the valve is effected by the roller M, which is rigidly connected to the cam bar J and which engages a channeled arm, N, rigidly attached to the valve. As J moves to the left the roller M engages the channeled arm and turns it and the valve through the desired arc. As the cam bar J reaches the limit of its travel the wheels G descend on the opposite incline and the valve settles into its new position. The whole process is repeated in opposite direction in reversing the valve. By the use of two cylinders an operating mechanism without inside packed joints is provided. The valve is counterweighted, as shown at O, and turns easily on a ball bearing collar, P.

The valve proper is surrounded by a second cylindrical box open at the top, which is filled with water

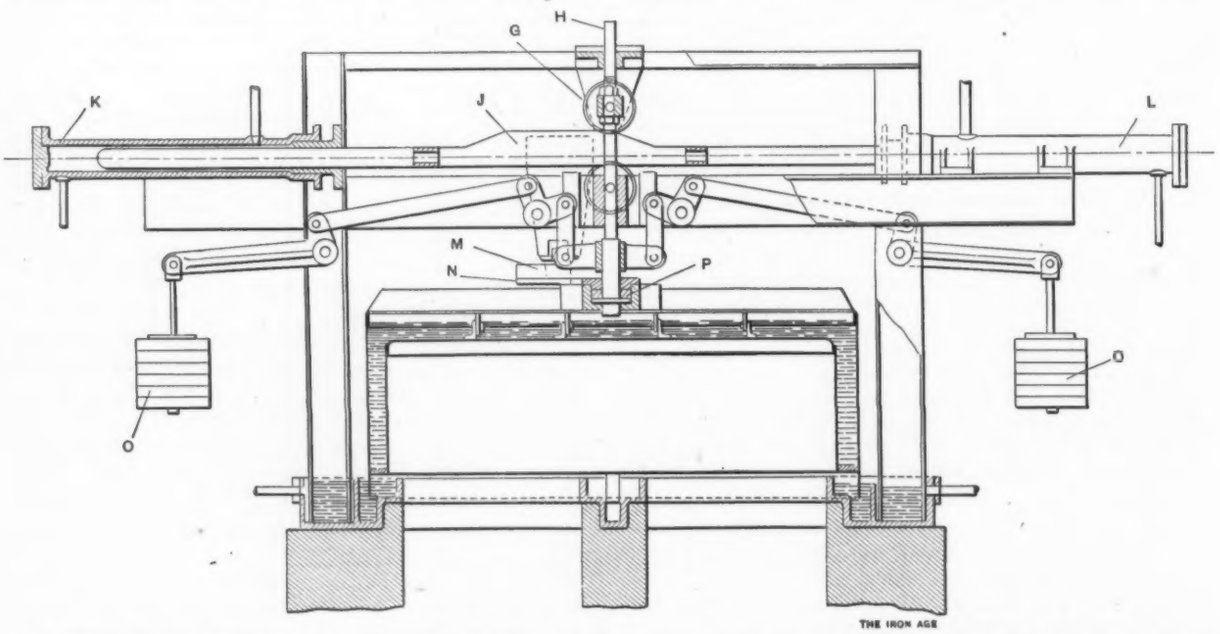


Fig. 3.—Elevation of the Dyblie Reversing Valve, Showing It Raised and Turned Ready to Drop Into Its Water Seal to Reverse the Path of the Gases from that Shown in Figs. 1 and 2.

and forms a water jacket. Water is permitted to flow into this jacket up to the top of the overflow pipes S, Fig. 2, through which it passes into the water seal beneath and thence to the overflow and to waste. Cleaning pockets, R, are provided at the edge of the water seal to permit removing mud or other impurities from the cross channels of the water seal without removing the valve, which cleaning is a matter of only a few minutes.

A valve of the water seal type has been obtained, with all surfaces in contact with the gas water cooled, yet without a closed water jacket or one that cannot be reached for cleaning while the furnace is in operation and without interrupting the flow of gas. No high pressure water is needed for cooling, and in case of interruption of the water surface it would be possible to keep the valve filled with hand buckets. The valves are built in sizes equivalent to 16 to 48 inch under the ordinary rating.

M. A. Hanna & Co., Cleveland, will manage the Pennsylvania Railroad coal and ore docks at Sandusky, Ohio, the coming season. New machinery is being added, the ore unloaders being equipped with clam shells and electric scrapers.

A call has been issued by the Executive Council of the National Civic Federation for the annual meeting, to be held in New York on Monday, March 19.

Metals and Their Ferro Alloys.

At a meeting of the Institution of Mining and Metallurgy in London on January 18, 1906, a paper was read by Dr. O. J. Steinhart on "Metals and Their Ferro Alloys Used in the Manufacture of Alloy Steels." The author grouped the metals and their ferro alloys used by steel makers in the following order of importance: Manganese, nickel, chrome, tungsten, molybdenum and vanadium, and experimentally cobalt, titanium, uranium and tantalum. The requirements of steel makers as to the purity of the elements added to steels are very stringent. The consumption and production of nickel is steadily increasing and the output for the present year will be between 13,000 and 14,000 tons. The price ranges between £150 and £185 per ton. The leading Sheffield steel works now control an independent supply of the metal, and the well-known Sudbury district produces more than half the world's output. The total yearly production of ferrochromes is between 4000 and 5000 tons, and a suitable ore for the production of ferrochrome should contain at least 50 per cent. of $Cr_2 O_3$. Ferrochromes usually contain 6 per cent. of carbon, but very pure alloys are made to enable chrome to be employed in low carbon steels. Tungsten has created fresh interest latterly by reason of its application to the manufacture of self hardening rapid tool steels. The principal ore is wolframite, which in the pure state should contain over 70 per cent. $W O_3$. Prices have varied in an extraordinary manner, but at the present time a 65 per cent. ore is worth £85 per ton. The world's production of wolfram ores is about 3000 tons per annum. Metallic tungsten powder as employed by the steel maker is in the hands of about half a dozen German makers. Molybdenum, belonging to the same group of elements as tungsten, is less reliable and more difficult to prepare in the pure state. Vanadium has come into prominence latterly. The ores used for the manufacture of ferrovanadium contain about 10 per cent. of $V_2 O_5$, and such an ore is worth 4 to 5 shillings per kilogram of such contents.

R. A. Hadfield in discussing the paper said that the price of manganese, which once stood at £86 per ton and had fallen to £12, is again going up, and it appeared to him that the price of nickel would advance considerably. He hoped prices would not be advanced unnecessarily. Carbon steel might be very largely improved. A number of people who sell alloys have an altogether mistaken notion as to the carbon contents. Nearly all steel requires carbon and a certain percentage in the alloys is not injurious. For a large number of steels there is no necessity to produce ferrochrome at £15 per ton when chrome alloys can readily be obtained at a much lower price. Nothing has been done seriously as regards the use of tungsten for armor plates, chrome being an element so much cheaper.

The Determination of Chromium in Steel.

BY EDWARD HERMS.*

The method given below for the determination of chromium in steel, while as accurate, will be found as rapid as and requiring less skill than any other method and is not interfered with by the manganese in the steel. This method is a combination of the methods of Fred. Ibbotson, *Technics*, February, 1905, and Harry E. Walters, *Journal of American Chemical Society*, December, 1905, with the method of Galbraith, given in Blair's "Chemical Analysis of Iron." I got low results by Ibbotson's and Walter's methods and high results by Galbraith's method. I could not get rid of the permanganate in Galbraith's method, even by boiling a half hour, and the abundant manganese dioxide was difficult to filter. I found no trouble, however, by combining the two methods, and a determination is readily made in three-quarters of an hour. I tested the accuracy of the method by adding a standard solution of potassium bichromate to various solutions of steel free from chromium, but containing 0.72 per cent. of manganese.

Dissolve 1 to 5 grams of the steel in from 30 to 90 c. cm. of dilute sulphuric acid (1 to 4) and add, when dissolved, 3 to 5 grams ammonium persulphate to the lesser amount of steel and 10 grams to the larger amount and heat a few minutes. Add slowly a few small crystals of potassium permanganate, which should be decomposed at once into manganese dioxide. If too much permanganate is added there will be difficulty in filtering. If it is found necessary to add a larger quantity of permanganate than will filter readily, this may be avoided in the next trial by adding more persulphate. After adding the permanganate the liquid should be boiled 15 to 20 minutes to insure the complete destruction of the permanganate. The liquid is then filtered by suction to remove manganese dioxide, washed with water and a standardized ferrous ammonium sulphate solution added in excess and the excess determined by a standard solution of potassium permanganate. I used a solution of 1 gram permanganate to 1 liter of water and a ferrous ammonium sulphate standard to match.

In testing the accuracy of the method I found 0.03458 gram chromium against the theoretical 0.03452 gram chromium. A check gave 0.03437 gram chromium. Working on 5 grams of steel I found 0.0180 gram chromium against the theoretical 0.01726 gram chromium. This corresponds to 0.36 per cent. of chromium against the theoretical 0.345 per cent.

* Chemist of the Commonwealth Steel Company, Granite City, Ill.

Exports of Pipes and Fittings.—In the second six months of 1905, the Bureau of Statistics, Department of Commerce and Labor, gathered the statistics of exports of pipes and fittings by weight as well as by value, the latter alone having been given previously. In the six months ending with December, 1905, as we are informed by the bureau, 153,701,262 pounds of pipes and fittings were exported, valued at $4,175,267. As the value of all exports of pipes and fittings for the calendar year 1905 was $8,293,816, the presumption is that the exports for the year were about twice those of the second six months, or in the neighborhood of 137,000 gross tons. This tonnage is to be added to a total for 1905 of 1,009,290 gross tons of various iron and steel products of which weights have always been given in the statistics of the bureau. The designation "Pipes and Fittings" appears to include cast iron pipe and fittings as well as wrought pipe and fittings.

New Crucible Steel Casting Plant at Buffalo.—The Buffalo Crucible Casting Company has been incorporated at Buffalo, N. Y., with $150,000 capital stock, to manufacture crucible steel castings, especially light castings for use in machinery, automobiles, &c. The directors are E. G. Ripple of the Buffalo Foundry Company, John L. Osgood, Alfred W. Thorne, George Bleistein and Frank L. Bapst. The site for the company's plant will be decided upon soon and the plans for buildings prepared as soon as the ground space is determined. It is expected that a working force of about 100 men will be employed at the outset.

The Trimont Mfg. Company.

This company, manufacturer of wrenches at Roxbury, Mass., is to erect a new building, 54 x 75 feet, for its annealing, pickling and case hardening departments, replacing one of the buildings which was destroyed by fire several months ago. The company has purchased an adjoining property formerly occupied as a brewery and is making extensive alterations, converting the building for its various purposes. This is a considerable task because of the different business of the previous tenants, but one that will result in a fire proof plant conveniently arranged for the company's requirements. The machine shop was not burned and its capacity will be largely increased in the new building. The forge shop is already installed in the new building and a 7000-pound steam drop hammer, built by the Chambersburg Engineering Company, Chambersburg, Pa., has been installed and another of 2000 pounds has been contracted for, adding to the battery of hammers which escaped the fire. A five-ton traveling jib crane has been ordered of the Case Mfg. Company, Cleveland. An industrial railroad will be installed, connecting the steel storage with the forge shop and encircling the latter room at the rear of the hammers, that material may be delivered convenient to each. A new McIntosh & Seymour engine of 270 horse-power, a Crocker-Wheeler 150-kw. generator, two 170 horse-power Robb-Mumford boilers and a B. F. Sturtevant Company economizer and blower system constitute the power plant. The machinery will be operated by electric motors, in units. A pump will take the necessary water from a capacious artesian well. Modern machinery will be installed throughout. The company will have 100,000 feet of floor space. The increased capacity is greatly needed because of the rapid enlargement of the business.

The New England Foundrymen's Association.

The monthly meeting of this association was held at the Exchange Club, Boston, February 14, with a large attendance. President Walter B. Snow was in the chair. The speaker of the afternoon meeting was J. S. Robeson, president of the Robeson Process Company, Camden, N. J., whose subject was "Core Sands." His very interesting talk was illustrated by lantern slides showing the varieties of core sands in common use, and he gave valuable information concerning the strength of each. In addition, Mr. Robeson had a large display of core sands attractively arranged on a table where all could inspect them.

The speaker of the evening meeting was Charles Kirchhoff, editor of *The Iron Age*, who read a paper on "General Tendencies, Economic and Technical, Which Are Influencing the Development of the Manufacture of Pig Iron." There was the usual dinner.

At the business meeting it was announced that the March meeting of the association will be held at the Hartford Club, Hartford, Conn. The committee in charge of this meeting will be composed of Charles J. Caley, Russell & Erwin Mfg. Company, New Britain; E. E. Durant, G. F. Warner Mfg. Company, New Haven; Frederick A. Strong, Eaton, Cole & Burnham Company, Bridgeport, and Henry Souther, Souther Engineering Company, Hartford. The principal speaker on that occasion will be O. P. Briggs, commissioner of the National Founders' Association. This will be one of the first meetings of the association held out of Boston and is anticipated with unusual interest, with a promise of a large attendance.

Announcement was made of the death of Frederick T. Towne, general superintendent of the Yale & Towne Mfg. Company, Stamford, and a committee, consisting of Henry A. Carpenter, Providence; Charles J. Caley, New Britain, and F. B. Farnsworth, New Haven, was appointed to prepare suitable resolutions.

The Revision of the Canadian Tariff.*

The Pleas for Four Years' Extension of the Pig Iron and Steel Bounties.

All the larger interests of the iron and steel industry deferred the presentation of their cases to the Tariff Commission until the closing days of the commissioners' long tour or until the final sessions were held in Ottawa. When these cases were presented they were unusually interesting, not only by reason of the changes urged in the bounty legislation of the Dominion Government and in the tariff schedules, but also because of the information forthcoming in the petitions as to the present condition of the iron and steel industry in the maritime provinces and in the Province of Ontario.

Until the plant of the Dominion Iron & Steel Company was established at Sydney, Cape Breton, until the Nova Scotia Iron & Steel Company installed its blast furnace and its six open hearth furnaces at Sydney Mines and until the Algoma Steel Company began to turn out rails at Sault Ste. Marie, Hamilton was the largest center of the iron and steel industry of the Dominion; and the companies operating there were among the earliest concerns to draw Dominion bounties in respect of their output of pig iron and open hearth steel.

The Hamilton Iron & Steel Company's Statement.

Until a couple of years ago there were two companies at Hamilton, one making steel ingots and the other operating rolling mills. These concerns are now combined as the Hamilton Steel & Iron Company; and when Mr. Hobson, the president of the company, submitted its case to the Tariff Commission in Ottawa he stated that the paid up capital of the company is $1,517,600, and that it is engaged in the manufacture of pig iron, open hearth steel and rolled iron and steel bars and shapes. The capacity of the Hamilton plant, as at present equipped, is from 70,000 to 75,000 tons of pig iron annually, 60,000 tons of open hearth steel, 40,000 tons of rolled steel bars and shapes and 40,000 tons of rolled iron bars and shapes. In the last five years the Hamilton plant has increased its production of iron by 30 per cent., steel 60 per cent. and bars and shapes 100 per cent. Under the British preferential tariff the total protection on pig iron made from Canadian ore is now $3.32 per ton, as compared with $5.50 a ton in 1897, and the protection against Great Britain is $2.77 per ton on pig iron made from American or other imported ores.

"We ask," said Mr. Hobson, "that the duty on pig iron be made $3 against Great Britain; that a bounty of $2.50 a ton be continued until June 30, 1909; that the duty on billets be made $4 a ton, and that a bounty on steel ingots of $2.50 a ton be continued until June 30, 1909."

THE BOUNTY LEGISLATION.

Here it should be explained that under the bounty legislation now on the statute book bounties are on a decreasing scale. They vary in accordance with the ore used, Canadian or imported, and unless renewed they come to an end June 30, 1907. There is only one plant using exclusively Canadian ore—the Drummond Company at Londonderry, Nova Scotia. Some Canadian ore is used at Hamilton, but there, as at Sault Ste. Marie, American ores are largely used, and at Sydney Wabana ore, mixed with Spanish ores, forms the staple for the furnaces. During the current year ending on June 30, 1906, the bounties are as follows:

	Per ton.
Pig iron from Canadian ore	$1.65
Pig iron from foreign ore	1.10
Steel ingots	1.65
Puddled iron bars	1.05

Between 1898 and May 8, 1905, $5,204,755 was paid in iron and steel bounties, $272,931 going to the Nova Scotia Iron & Steel Company, $2,252,455 to the Dominion Iron & Steel Company, $1,049,224 to the Hamilton Blast Furnace Company and the Hamilton Steel & Iron Company, now one concern; $328,740 to the Algoma Steel Company and $64,493 to the Londonderry Iron & Mining Company, which, as I have said, uses Nova Scotia ores exclusively. In calculating the net protection against Great Britain the amount of the bounty is added to the duty paid under the preferential tariff. The duties against United States importations are: Pig iron, $2.50 a ton; steel ingots, blooms and billets, $2; rolled iron or steel angles and other structural steel, $7, and steel rails, $7.

A FOUR YEARS' EXTENSION ASKED.

Mr. Hobson in making his general plea for a four years' extension of the bounty system and an increase in duties, assured the commission that if his plea were granted he was satisfied that capital could be obtained to place the iron and steel business permanently on a sound financial basis. "It may be claimed," he continued, "that with the encouragement we have had from the present Government the iron and steel interests in Canada should by this time be in a good position, but no one who has not been actively engaged in the business can realize the innumerable difficulties encountered and the unforeseen expenditures which had to be incurred in building up a plant. The training of men alone is a serious problem. Those of us who did start early in the day are only now commencing to get our plants properly working, as protection in the shape of bounties begins to disappear. Every year until last year, 1905, our open hearth steel plant at Hamilton showed a large loss. I feel fully justified in stating that at many times during the past six years, if the Canadian iron and steel works had not been in existence, the consumers of pig iron and steel would not have been able to operate their works to their full capacity, on account of a shortage of material, and what material they would have got would have been at an exorbitant price. With the home competition the consumer has got his material at a fair price."

Dealing next in detail with the position of the pig iron industry, Mr. Hobson stated that to meet the increased consumption of pig iron in Canada more furnaces must be built in the immediate future. "But capital," he continued, "cannot be got without an assurance of a reasonable encouragement from the Government. We ourselves would build another furnace at once if such encouragement were given. At the present time we are using about 70 per cent. of Canadian ore in our mixture, notwithstanding that we could have laid down American ore to better advantage. Our policy has always been to use Canadian material where it is at all possible, and we have done everything in our power to foster the mining of Canadian ores."

BOTH DUTY AND BOUNTY ON STEEL DESIRED.

"In asking for a duty of $4 a ton on steel billets and a bounty of $2.50 a ton on ingots, we think," said Mr. Hobson, "we are making a reasonable request; for until such time as the production of steel in Canada is put on a good sound basis the rolling mills not making their own steel must be dependent on foreign producers, and we know at the present time how precarious that dependence is. It is only when the demand is small in other countries that we are able to purchase. If Canadians were producing all their own steel the consumer would find that he had a regular supply and that the home competition was maintaining a fair price. The producing capacity of iron bars in Canada is sufficient to meet all demands, and the result has been that for many months the price of these bars has been lower in Hamilton, Toronto and Montreal than it has been in Pittsburgh, Youngstown and Chicago. And while we do not say that steel can be made in Canada as cheaply as it is in the United States we can say that the price would at all times be an equitable one. There are many reasons why it is difficult for us to get our price on a par with that of the United States plants. We have to pay much higher

* Continued from page 570, February 15.

freight rates on our raw material, such as ore and coal, and the duty we pay each year on coal—53 cents a ton—in our own case is equal to 2 per cent. on our capitalization. The Canadian demand also is for small quantities."

THE UTILIZATION OF SCRAP STEEL.

Another reason which Mr. Hobson advanced in favor of the fiscal changes for the steel plant was the utilization of scrap steel. "The quantity of scrap steel offering in Canada," he said, "is rapidly increasing and the only way of using it up is to remelt it in open hearth furnaces. If it is not used in this way in Canada it will become a drug on the market and so much wealth lost to the Dominion, as owing to the stringent regulations now in force in the United States it is an expensive matter to send scrap steel into that country. If the article has not lost its identity it cannot go into the United States as scrap. If," concluded Mr. Hobson, "our requests are complied with, we will not only install another blast furnace, we will increase our production of open hearth steel and add a blooming mill."

Sir Richard Cartwright: "What do you think it costs to produce a ton of pig iron?" Mr. Hobson: "That depends upon the price of ore." Sir Richard Cartwright: "What is the cost to-day?" "From $14.50 to $15 a ton." Sir Richard Cartwright: "How does that compare with the cost in England or Scotland?" Mr. Hobson could not tell. At the present time, he said, the cheapest market for pig iron is the United States, where iron could be bought at $16.50 a ton; but just now there is a shortage of pig iron the world over, and prices are abnormal.

Mr. Hobson commended the dumping duty and told the commission that before the antidumping clause was inserted in the tariff the Hamilton concern was almost entirely put out of business.

The Nova Scotia Steel Company's Plea.

The plea of the Nova Scotia Steel Company was submitted by Harvey Graham when the commission was at New Glasgow. Generally it was much the same as regards bounties as that of the Hamilton Company, except that it was urged for the Nova Scotia Company that as it uses Nova Scotia coal, Wabana ores from Newfoundland should not be regarded as foreign. They should be regarded as Canadian and the full bounty paid on pig iron produced from them. It was also urged that both the Liberal and Conservative parties in Canada are now agreed that the present system of encouraging the iron and steel industries—bounties and tariff duties—is the best that could be devised, as the bounty system spreads the encouragement to the industry over the entire people.

In laying stress on the plea for the whole bounty for the output of the Sydney Mines and New Glasgow furnaces, Mr. Graham reminded the Tariff Commissioners that 3 tons of coal, 1 ton of limestone and 2 tons of ore are necessary to the production of a ton of pig iron. He added also that there are now in all 14 blast furnaces in Canada. Only two are out of blast, and the total annual furnace capacity of the Dominion is given as 650,000 tons. It was further stated that from $18,000,000 to $20,000,000 are now invested in blast furnace equipment in Canada and about $15,000,000 in open hearth furnaces.

LOW OCEAN FREIGHTS DISTURB THE HOME MARKET.

The Nova Scotia Company, as another reason for extension of bounties and increases in duty against Great Britain, insisted that cheap ocean freight for the product of British furnaces nearly wipes out all the advantages which the iron and steel plants in the maritime provinces enjoy under the Dominion tariff. These maritime province plants, it was complained, had to bear the brunt of the British preference, while at Toronto and at points west of Toronto they had to meet the competition of Pittsburgh, which had the advantage of lower railroad rates. From Pittsburgh to Toronto the freight rate on bar iron is $3.60, as against $5.70 from New Glasgow to Toronto, $6.40 to London and an average of $6 to Ontario points west of Toronto. These freight rates serve to reduce the protection on bar iron from Pittsburgh from $7 to $4.60. East of Toronto the New Glasgow plant is on equal terms with Pittsburgh; but in this territory the Nova Scotia Company, as has been stated, has to meet the competition of British manufacturers, who have the advantage of cheap ocean freights. Thus the freight rates on bars from British ports to Montreal is $1.50 a ton, against a rate of $3.20 from New Glasgow to Montreal. The net result of these conditions is that as against British manufacturers the Nova Scotia Steel Company has a protection of not more than 12½ per cent. ad valorem.

BOUNTY ASKED ON STEEL RAILS.

About June, 1905, when the Sault Ste. Marie plant of the Algoma Steel Company and the Sydney plant of the Dominion Iron & Steel Company each began to make steel rails the Algoma Steel Company filed a claim with the Department of Trade and Commerce in Ottawa for a bounty of $3 a ton on its rail output under the bounty act of 1899. The act provides that the bounty shall be paid on "rolled angles, tees, channels, beams, joists, girders or bridge building or structural rolled sections and on other rolled shapes not round, oval, square or flat, weighing not less than 25 pounds per lineal yard, when sold for consumption in Canada." The company claimed the bounty, and at first the department agreed to its claim, but in August the Government issued an order setting forth that the act of 1899 did not apply to steel rails because by order in council of August 27, 1904, a duty of $7 a ton under the act of 1903 had been imposed in the interest of these new Canadian rail mills. The Nova Scotia Steel Company has lately made large additions to its plant at Sydney Mines. It is understood that a rail mill is soon to be installed there to handle the output of the new open hearth furnaces, and one of the pleas put forward for the Nova Scotia Company when the commissioners were at New Glasgow was that by further legislation the Government should make the Steel Bounties act of 1899—the act I have quoted—applicable to steel rails.

Another statement made by Mr. Graham was that he was confident that the iron production capacity of Canada would be doubled in the next ten years, and he added that the plants, both of Sydney and Sydney Mines, would be added to at once if the Government would pay the full bounty on pig iron made from imported ores.

The Dominion Iron & Steel Company's Case.

The case for the Dominion Iron & Steel Company, the largest of the Canadian plants, was put forward by L. P. Jones, who three months ago succeeded Graham Fraser at Sydney. Mr. Jones asked for a continuation of bounties and also that barb wire, now on the free list, should be protected by a duty of 20 per cent., the same rate of duty as was urged by the wire manufacturers when the commission was at Montreal and by the wire nail interests when the commission was at St. John, New Brunswick.

Mr. Jones, who made his plea when the commission was at Sydney, regretted that he had to ask for a continuation of the bounties on pig iron and steel ingots. But at this juncture in the history of the Dominion Company they are simply a necessity. It was expected by the company that between 1901, when the blast furnaces got to work and June, 1905, it would earn $7,245,000 in bounties. As a matter of fact, it had earned in that period only $2,460,653 in bounties, or only 34 per cent. of the sum that it was expected it would earn. The failure to earn more was not due to the Government, but to unforeseen delays attendant upon the installation of the new plant.

From 1897 to 1904 the total amount paid out of the Dominion Treasury in bounties for the encouragement of the iron and steel industry was $4,333,873, and Mr. Jones took the ground that these bounties had not cost the people of Canada a cent. They had been no charge on the country because the increase in the customs revenue directly traceable to the establishment of new iron and steel industries for the same period (1897-1904) was $4,715,943. In this estimate Mr. Jones assured the commissioners that he had taken only the import figures for the ports of entry of Sydney, North Sydney, New Glas-

gow, Sault Ste. Marie and Hamilton, all centers at which since 1897 there had been great developments in the iron and steel industry.

THE WIRE DUTY.

In urging the new duty on wire Mr. Jones stated that there is not sufficient business in Canada at the present time to keep one wire rod mill continuously busy. Last year the imports, chiefly from the United States, were 37,371 tons. If all this imported wire had been made from rods turned out at the Sydney mill it would not have kept it going all the year round, for the capacity of the mill is 90,000 tons, and last year the total consumption of wire in Canada was only 71,653 tons. Mr. Jones recalled the fact, which has been emphasized two or three times in the course of the tour of the commission, that the Dominion Wire Company of Montreal was permitted by arrangement with the United States Steel Products Export Company, a concern allied with the United States Steel Corporation, to make 3000 tons of wire, subject to the condition that it buys its steel rods from the Steel Corporation.

Like Mr. Hobson of the Hamilton plant, Mr. Jones was enthusiastic in praise of the antidumping clause. He thanked the Government for enacting it, and told the commission that the rod mill at Sydney would not have been in operation to-day had it not been for the antidumping clause. He declared that it had stopped the United States Steel Corporation from levying tribute on the wire and nail interests of Canada, urged its continuance in the new tariff, and recommended that its administration should be made still more drastic.

In speaking of the capacity of the Sydney plant Mr. Jones stated that the output in 1905 was 47,500 tons, and the expectation was that in 1906 the tonnage would be increased by 50 per cent. There are now on the payroll of the company 4636 men—3379 at the plant at Sydney, 807 at the mines on Wabana Island and 450 at Marble Mountain, Cape Breton, whence the company obtains its limestone. The average wage, excluding foremen and superintendents, is $1.92 per day. The company has $1,500,000 of capital yet to expend. Up to now it has paid no dividends and it has a floating indebtedness. At Sydney all the steel billets that could be needed in Canada could be turned out in two months if it were not for the needs of the rail and rod mills. In discussing the immediate future of the steel trade in Canada with the commission Mr. Jones insisted that the present demand for structural steel in Canada was not sufficiently large to justify the establishment of a mill to make it.

Seven Rolling Mill Companies Make a Special Plea.

The representatives of seven rolling mill companies, whose plants are located at Montreal, Toronto and London, Ont., appeared with a protest against any increase in the duties on iron and steel, and on pig iron and steel billets, unless the Government were prepared to grant the rolling mill interests higher compensating duties than those in the existing tariff. They based their protest chiefly on the fact that the furnace capacity of Canada is not now and cannot be for some time to come equal to the demand for billets. The petitioners also urged that the Government should further encourage the manufacture of pig iron and steel by bounties. These interests heartily indorsed the British preference and urged more specific duties in the tariff instead of ad valorem duties on steel and the products of iron and steel.

(To be continued.)

National Metal Trades Association.—The annual convention of the National Metal Trades Association will be held at the Hollenden Hotel, Cleveland, Ohio, on Wednesday and Thursday, March 21 and 22. The original dates announced were March 14 and 15, but on these latter days the conventions of the American Supply and Machinery Manufacturers' Association and of the Southern Supply and Machinery Dealers' Association are in session at St. Louis. The Cleveland convention will be one of the most important the National Metal Trades Association has held, in view of the merging of the leading local metal trades associations in the national organization since the Chicago convention of 1905 and the movement now under way for close relations between the National Metal Trades Association and the National Founders' Association.

Canada's Iron Ore Resources.

The *Canadian Mining Review*, referring to the fact that the Lake Superior iron ore supply is very largely preempted by iron and steel producers in the United States, so that there is no surplus for export, says that it is at this point that the iron ore resources of the Dominion of Canada loom up quite largely. It refers to the Wabana deposit of Newfoundland, to the Helen mine on the Michipicoten range and says that "the vast stores of raw material in the Dominion are only just beginning to be realized by Canadians themselves." On this enthusiastic presentation of the case the London *Iron and Coal Trades Review* comments that while it is not likely that a country with an area equal to that of the United States and more than equal to that of the whole of Europe can be without important iron ore deposits, which in the future will be valuable probably to the Mother Country as well as to the Dominion, up to the present time these ores have not crystallized into the practical form of a large home consumption. Newfoundland, whatever may happen in the future, is not yet a part of Canada. The total quantity of iron ore produced in the Dominion of Canada in 1904 was under 300,000 tons, and it is hardly credible that if the ore resources generally were of great extent or special value they would not now be used on a larger scale. However, we are glad to note that the Canadians themselves are more sanguine as to the future of their iron ore supplies than some outsiders seem to be. At present we would hardly like to recommend our readers to attempt to rear the superstructure of an extensive and profitable Canadian iron industry on Canadian ores alone."

The Steel Industry of Nova Scotia in 1905.—United States Consul West of Sydney, Nova Scotia, gives data concerning the operations of the Dominion Iron & Steel Company and the Nova Scotia Steel & Coal Company, Limited, in 1905. The statistics he gives will serve to set right some misapprehension as to the amount of iron ore imported by the Dominion Iron & Steel Company. The company shipped for its own use from its mines in Newfoundland, 380,254 tons, while the ores imported from the United States, Spain and Sweden amounted to 28,952 tons. The limestone and delomite shipments from Cape Breton aggregated 267,237 tons. The output of pig iron was 162,000 tons and of steel 163,500 tons. Of 80-pound steel rails the total rolled between June and the end of the year was 44,000 tons and the output of rods in the year was 47,000 tons. The balance of the steel produced went into blooms and ingots, most of which found a market in Canada. A shipment of 30 tons of rails was made to the Boston Elevated Railway Company for experimental use on the sharp curves of that road, the purpose being to find out to what extent the open hearth rails exceed in wearing qualities the rails heretofore in use. Referring to the Nova Scotia Steel & Coal Company, Limited, Mr. West gives the output of coke at 120,000 tons, pig iron 58,000 tons, steel 22,000 tons. The importations of ore from the company's mines in Newfoundland were about 100,000 tons and from other countries 15,000 tons. Pig iron and steel ingots are shipped to the company's works at Trenton, Nova Scotia, and to various Canadian markets. The shipments of bituminous coal in 1905 from the mines of the Dominion and Nova Scotia steel companies amounted to 3,158,907 tons.

The new steamer William P. Snyder, owned by the Shenango Steamship Company and named after the president of the company, was launched at the Ecorse yard of the Great Lakes Engineering Works, Detroit, on Saturday, February 17. The boat was christened by Miss Dyer, daughter of C. D. Dyer, vice-president of the Shenango Furnace Company and of the Shenango Steamship Company.

The Becker-Brainard Plain Milling Machine.

Among the improvements in the No. 4 plain milling machine made by the Becker-Brainard Milling Machine Company, Hyde Park, Mass., one of the most important is the positive gear feed drive and change feed mechanism, by which 20 changes of feed can be made without stopping the machine. Other features which are new to this machine are the clutch mechanism in connection with the hand wheels, the box type of knee and the telescopic elevating screw.

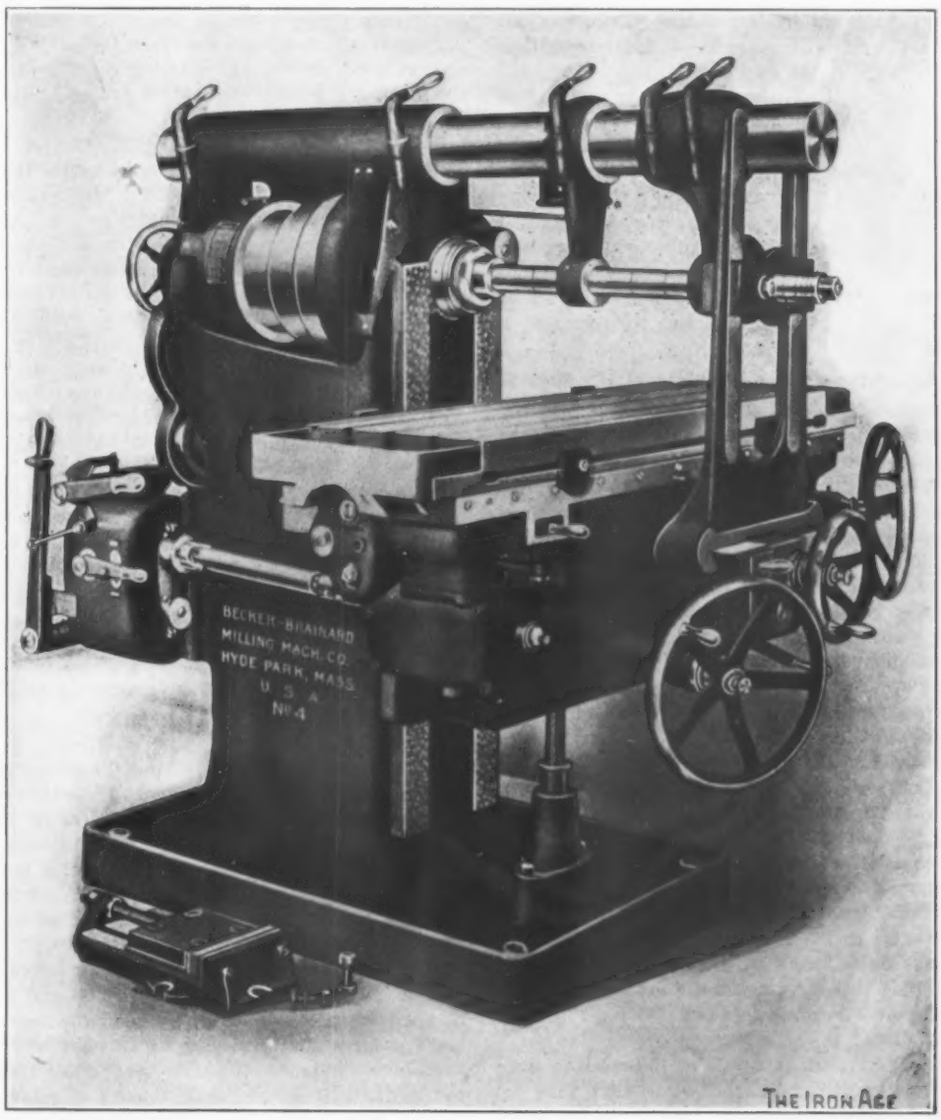
The spindle is of hammered crucible steel, has a ¾-inch hole through it and runs in self centering bronze boxes arranged to compensate for wear. At the front end the spindle has a No. 12 B. & S. taper hole, a slot across the end to engage a clutch on the arbor and a thread to take a chuck. This screw is covered by a collar when not in use. The spindle is connected with the change feed mechanism by three spur gears, making a positive driven feed. It is double back geared, the gears being protected with shields.

The arm is of steel, is arranged to adjust horizontally and has a removable arbor support, allowing the use of any attachment without removing the arm. The platen has automatic longitudinal, cross and vertical feeds. It is provided with T slots and oil pans at each end. The feed may be reversed at the front of the machine. The knee is provided with an automatic vertical feed and knock off.

The hand wheels for operating the feeds have clutch members inclosed in their hubs. When the table has been set to the required position the clutch may be instantly disengaged by pressing in a knob on the front of the hand wheel. This prevents any accidental change of position of the work and avoids the revolving of the hand wheels when the feeds are in action. To indicate the vertical, transverse and longitudinal movements of the platen there are adjustable dials graduated to thousandths of an inch, which may be set at any position with set screws.

The following are some of the principal dimensions:

Length of table feed	46 inches.
Cross feed, in and out by power	14 inches.
Vertical movement of knee, by power	20 inches.
Distance from end of spindle to bushing in arbor support,	30 inches.
Distance from center of spindle to arm	8¼ inches.
Distance between column and braces	30 inches.
Range of spindle speeds	18 to 220
Number of spindle speeds	18
Ratio of back gears	10 to 1 and 3¼ to 1
Net weight	7,100 pounds.



The No. 4 Plain Milling Machine Built by the Becker-Brainard Milling Machine Company, Hyde Park, Mass.

The patented change feed mechanism is conveniently arranged on the back of the column and affords instantly 20 changes of feed, varying from 0.008 to 0.366 inch per revolution of the spindle. These are controlled by a simple movement of the lever, and the changes may be made without stopping the machine.

R. A. Hadfield, Sheffield, Eng., has been granted a patent in the United States on a process of hardening steel. The first claim is on a method of hardening steel which consists in raising the temperature of the steel to about 975° centigrade, permitting it to cool slowly, reheating the cooled steel to a temperature of about 500° centigrade and permitting the steel to cool slowly after such reheating. The remaining claims introduce variations in the above temperatures, the heat employed varying according to the amount of carbon in the steel.

The National Supply and Machinery Dealers' Association.

First Annual Convention, Fort Monroe, February 15, 16, 17.

That the National Supply and Machinery Dealers' Association has gained momentum which, if properly directed, will speed it on to the attainment of a betterment of conditions in the selling of factory, mill and railroad supplies and machine tools was plainly evident at the annual convention of the association, held at the Hotel Chamberlin last week. It was the first meeting of this organization since its formation in Cleveland, Ohio, February 15, 1905. It lasted three days, beginning on Wednesday morning. Two of these were devoted to solid work, the third being used by the officers of the association for gathering up the loose ends of the proceedings while the members spent the day sightseeing.

At the conclusion of it all, the opinion was unanimous that the association had after its first year of existence proven itself. It had in this brief space of time delivered more than was expected of it, had evinced that it was founded upon the right principles and was working along the proper lines. Above all things it had demonstrated that its services are urgently needed to set aright certain trade conditions which require adjustment. The attendance was representative, including the most important machinery and supply merchants of the country and a number of well-known manufacturers.

What Was Accomplished.

The programme of the meeting was an interesting one, bringing forward for discussion several topics that have been a source of much serious thought on the part of both dealer and manufacturer for some time past. After the thorough discussion of these by both parties, the association, bringing as it does the dealers together in unity of action, was enabled to take steps to rectify the objectionable features.

The question of greatest interest, of course, concerned prices, and the association went on record as advocating the adoption of the "re-sale price" by manufacturers. The association also arrayed itself against the passage of any parcels post measure and indorsed the efforts to obtain 1-cent postage for first-class mail matter. Steps were taken toward the general usage of a standard size of price book, and the Machinery Committee's work to effect an agreement with machine tool builders whereby the marketing of machine tools may be accomplished along lines more satisfactory to the dealer was advanced and indorsed by the association. A resolution was also carried against the compulsory adoption of the metric system in this country. A number of other matters were brought out as subjects of debate, but no definite action was taken at this meeting as the problems require further study before it would be advisable for the association as a whole to take action.

Cropping out at frequent intervals of the meeting were illustrations showing the excellent work that may be done by the local associations. It was strongly urged that locals be fostered, encouraged and organized wherever possible. That the strong Pittsburgh, Cleveland and Cincinnati locals are accomplishing magnificent results for their members was clearly evident, and it is a matter of fact that the members of these two organizations form the backbone of the National Association. The Pittsburgh local, for instance, holds weekly meetings, the members uniting at luncheon every Wednesday noon. At these meetings the supply and machinery business of the district is kept pretty well in hand, much to the benefit socially and financially of its members. The Cleveland and Cincinnati associations also have frequent meetings and are thereby enabled to prevent any misunderstandings from creeping into the situation. It was urged that with the entire country covered in this manner, at least so far as the important centers are concerned, the work of the national body could be made very much more effective and valuable. The National Association would then serve as a grand tribunal, keeping in line the various locals, which would occupy the relation of enthusiastic working district committees. One of the reasons, and the main one, for the advocacy of the local association is the fact that different conditions obtain in different localities. Measures which might be beneficial for one section of the country may be injurious to another. Such details, it was urged, should be attended to by the locals, leaving for the national, or parent, organization chiefly the function of seeing that the entire family of locals and such individual concerns as are located in isolated towns are living together peacefully and upholding the cardinal principles of the association. Special efforts will be made during the ensuing year in the direction of upbuilding a strong chain of local associations.

The Meetings.

Work of the convention really began the day before the opening session in what might be termed a preparatory meeting held by the members of the Executive Committee. The entire committee, consisting of President E. E. Strong of the Strong, Carlisle & Hammond Company, Cleveland; First Vice-President W. A. Somers of Somers, Fitter & Todd Company, Pittsburgh; Second Vice-President Alfred Marshall of the Marshall & Huschart Machinery Company, Chicago; Secretary-Treasurer J. H. Drury, A. E. Brion of Peter A. Frasse & Co., New York; George Puchta of the Queen City Supply Company, Cincinnati, Ohio; C. A. Strelinger of the Charles A. Strelinger Company, Detroit, Mich., and George T. McIntosh of the McIntosh Hardware Corporation, Cleveland, Ohio, was present. Besides outlining the detail work of the convention and seeing that everything was in readiness, the committee appointed A. T. Anderson of Cleveland, Ohio, secretary-treasurer to succeed J. H. Drury, who resigned in view of his duties as an officer of the Union Twist Drill Company of Athol, Mass., which was organized since Mr. Drury's connection with the association and which has grown to a point where his personal attention is required in the administration of the affairs of the company. Mr. Anderson was appointed upon the recommendation of the Cleveland contingent of the association, who know him very well as a result of his prominence in the business affairs of the city. He comes highly endorsed and he immediately impressed every one present at the convention in a most favorable manner. He is an able speaker of pleasing and easy address, with a great fund of knowledge concerning the business affairs of this country and foreign lands always in prompt command. His work at the convention showed him to possess rare executive ability and his readiness to grasp situations and comprehend the inward workings even of trade matters with which he was previously unfamiliar convinced the members that their executive committee had secured a thoroughly capable man to continue the important work brought to so high a plane of efficiency by the retiring incumbent, J. H. Drury. Mr. Anderson was formerly a manufacturer in Cleveland, retiring to become County Recorder. For eight years he was Postmaster of Cleveland and during the last two years held the position of Commissioner of the National Board of Trade, serving that organization during its most prosperous period, being under the administration of Colonel J. J. Sullivan.

The ladies, manufacturers and representatives of the press lent beauty, grace and dignity to the opening of the Dealers' Association on Wednesday morning, for it was an open session to which all were invited. The programmes were very neat affairs, having handsomely embossed covers bound by large silk cords and showing perfect taste in their make-up.

President Strong in a few well-chosen words welcomed everybody, and after the singing of our national anthem the Rev. Charles S. Walkley, chaplain Artillery Corps, U. S. Army, opened with prayer.

The President's Address

was then presented, being as follows:

At the close of our first year as an association it seems proper to ask in brief what have been the results and what are the prospects for the future.

The details of the past year you will have from the report of our efficient secretary. I think it proper, however, to call your attention to the fact that, owing to the necessary delay in perfecting our organization and determining upon the selection of a secretary, the year's work has really all been done in eight months. Considering the conditions existing last June, I believe that exceedingly satisfactory results have been accomplished and that there is every reason to expect that during the coming year the association will take such a position that there will be no question as to its importance and value both to its members and the manufacturers with whom it works.

On June 1, 1905, we had enrolled only 31 members, and it was thought advisable that our secretary should spend the necessary time to increase our membership before attempting to do much work with the manufacturers.

The attitude of the manufacturers was not at all encouraging. Many of them were jealous of each other and most of them were distrustful of our association. In a great many instances they had the mistaken impression that we were organizing to fight them, instead of combining to work in greater harmony with them. As far as I know or am able to learn, this mistaken impression has been entirely done away with, and a good many of the manufacturers are beginning to look to the association as an aid in adjusting matters between themselves, as well as between themselves and their customers.

This feature alone is very encouraging, but we must not be too impatient for immediate results. All business is more or less in a rut and it requires some little time as well as effort to get it out. Most of those of us who built our own business from the ground up will remember that the first year or two, and perhaps three or four, were not very productive of bank accounts, and that we felt highly encouraged if we could see that gradually matters were coming our way. In accordance with the views of the association a number of manufacturers have adopted a resale price. This plan has been followed for some time by certain manufacturers in the hardware line at the suggestion and solicitation of the National Hardware Association and has been found very satisfactory. It only needs the enthusiastic support of our association to induce manufacturers generally to adopt the plan. I am so well satisfied of its importance that I urge all members to give it support when offered. Several manufacturers who have decided on this plan have advised me that there seemed to be but little interest taken in it by our members.

If this is owing to unfamiliarity with the plan or opposition to it, I hope that it will be thoroughly threshed out before the convention.

I would urge upon the convention the value of local associations, both for their intrinsic value to members and their aid to the National Association. I find that where there is a good local organization it is easy to bring a strong influence to bear upon any question that arises, as well as being highly beneficial in dispelling incorrect ideas of our competitors.

Locally we should know each other better than we do, and that in almost every case will result in our being better friends and having more confidence in each other.

I would suggest that during the coming year members take it upon themselves as a duty to the association to bring to the attention of the secretary such matters as may occur to them as proper for action by the association. During the past year but little of this has been done by the association generally.

The business outlook seems in the highest degree promising, and united, persistent effort on our part promises better reward for our labors in the future than in the past.

The Association's Secretaries.

Secretary-Treasurer Drury read brief extracts from his report, reserving the full report for executive session. The portions of it which he presented showed that while the association was launched on rather choppy seas it had ridden the waves nicely, and was now sailing along at even keel with good ballast in the hold and strong hands being constantly added to the crew. George Puchta of the Queen City Supply Company, Cincinnati, asked the privilege of the floor, and aroused genuine interest by announcing that the conduct of one of the members of the association had been of a nature that required the attention of the Executive Committee, and that on behalf of that committee he proposed to take the member alluded to to task publicly. He then told how during the first four months of the association's struggles, while a secretary-treasurer who might give the organization the fond nursing it needed was being sought, a member from Cleveland stepped in and unselfishly and without remuneration carried on that work. It was W. M. Pattison of the W. M. Pattison Supply Company, Cleveland. Just to show that the Executive Committee was not unmindful of the sacrifices thus wrought, and as a mark of esteem and gratitude Mr. Pattison was presented with a handsome silver loving cup. After Mr. Pattison's response Mr. Puchta resumed his remarks, and told the story of finding a man to fill the important office, "the right man," and one whose work had been so faithful and successful that the members of the association regretted that when he accepted the office he did so with the understanding that he was to be released at the expiration of the association's first year, and that now that this time has come he has found it necessary to be released. As a token of kind remembrance, a reward of merit and with best wishes for success in his new business enterprise, J. H. Drury was presented by Mr. Puchta in the name of the Executive Committee with a silver loving cup. In his acceptance Mr. Drury thanked the donors and the members of the association for the cooperation which they had extended him.

A. T. Anderson, the new secretary-treasurer, was then introduced, and he made a short speech of acceptance, which instantly won for him the confidence of the men he was to serve.

Words of Encouragement.

Felicitous remarks were made by Edwin E. Bartlet of Boston, T. James Fernley, secretary-treasurer of the National Hardware Association; E. B. Bailey of the Horton Chuck Company, Windsor Locks, Conn.; E. Bertram Pike of the Pike Mfg. Company, Pike, N. H.; T. A. Hall of the Yale & Towne Mfg. Company, New York; W. A. Somers of the Somers, Fitter & Todd Company, Pittsburgh, and others.

George Puchta of Cincinnati spoke of the necessity of co-operation and earnestness, telling how these were instilled by the work of the local association. He told of the good being accomplished by the Cincinnati local, and how confidence had gradually grown so that every member of the organization soon began to reap such benefits that now not one of its members would disrupt it if he could. He told how the members when first they got together agreed to do certain things for a week; then another week, and so on. When the association had been in existence a year and the matter of continuing came up no one would think of such a thing as to abandon the organization. By making comparisons, he said, he found that his profits had increased considerably owing to the work of the association. He concluded by urging every member not already affiliated with a local to go home with the firm determination to establish one and vouched that in another year the proof of the benefits derived will be easily discernible.

Alfred Marshall of the Marshall & Huschart Machinery Company, Chicago, gave the members a good talk on personal effort, telling of the work in Chicago and importuning each member to interest himself in the work constantly in order to reap the benefits of the association and at the same time strengthen the organization by lending his own interest.

A. E. Brion of Peter A. Fasse & Co., New York, who was one of the prime movers in the formation of the association, stated that although great difficulty had been encountered in maintaining a local in New York the work was proceeding satisfactorily and that he hoped that at the next convention he could report the existence in New York of one of the strongest locals in the country. He spoke of his plans to accompany Secretary Anderson to Philadelphia shortly, with a view of organizing the dealers located in that city.

George T. McIntosh of the McIntosh Hardware Corporation, Cleveland, related some very interesting facts concerning the growth of the National Hardware Association, which he termed the strongest trade organization in the world. He said that at the outset the manufacturers were bitterly opposed to the association, and then told how a reversal of this opinion had gradually come about. "Now," said he, "the manufacturers and ourselves are making more money than ever before, and of course every one is

happier. We get a group of manufacturers together," he said, "and say to them, 'You fix your price so that you will make a profit and then fix it for us.'" Speaking of the National Supply and Machinery Dealers' Association, he said: "Your Executive Committee will work with the manufacturers and not against them, but it must have your support. Send along some kicks to the secretary, for every one will aid him very much and you will yourself get interested in the work." He concluded by stating that the members of the National Hardware Association were each year getting in the way of increased profits many times the amount of their dues.

Work of the Machinery Committee.

The session on Wednesday afternoon was executive and was devoted entirely to the reading of reports from the following committees: Executive, Membership, Transportation, Grievance, Entertainment and Machinery. The last named was the only one of any considerable importance, and practically the entire afternoon was given over to the discussion of it. It is well known in the trade that the machinery contingent of the membership, or such dealers as handle machine tools, are seeking a better deal at the hands of the machine tool builder. Before the formation of the National Machine Tool Builders' Association, when both manufacturer and dealer were traveling their respective roads independently and unsupported by any sort of organization, things were very different from what they are to-day. Since the getting together of the machine tool builders the dealers are confronted by a sharp, straight line, and many of the perquisites of the trade that gave the dealer "a chance" have been eliminated. This makes his regular commission look rather small to him, while at the same time it is universally admitted in the trade that the expenses of selling which the up-to-date dealer must bear have increased very materially. The dealer of to-day must follow up his business very closely. He must have a man on the spot, not only when a customer is in the market ready to buy, but long before that stage is reached. He must have a man on the ground when the prospective purchaser is making up his specifications, and perhaps follow him up several times before the order is actually placed. This is of course the practice on big deals, but the dealer nowadays must be prepared to take orders for entire equipments or large groups of machinery, as the great increase in the number of large corporations has brought this method of buying into vogue. The salesmen must stop at a better class of hotels and must travel in a manner which costs a great deal more than the old fashioned chimney hunting expeditions used to cost. To lose a few orders, after being worked up in this manner, a pretty fair profit must be netted on the sales that are made, in order to have things evened up. There was a time, not very far back, when the dealer could make a little money in a speculative way. He could order for stock when the manufacturers needed the work more than the dealer did the money. Then when the demand came everything turned out well—for the dealer. As is well known, the Machine Tool Builders' Association now disapproves of the practice of selling to the dealer for stock. The dealer fails to see the consistency of this in the face of a clause in the contract he may have with the manufacturer which provides that the dealer shall at all times carry a representative line of the manufacturer's product. In some cases it is absolutely necessary for the dealer to carry a large stock, but he must pay the advances as prices may be raised on these tools while they are in stock. Now that the dealers have an association as well as the manufacturers, both have appointed committees to thresh the matter out, and it is the Machinery Committee of the dealers which reported on Wednesday afternoon. They reiterated the fact that they desire an increase in commission, a fact made known to the machine tool builders at their meeting in New York last December. It was made known then by the presentation to the machine tool builders of an agreement reached by both committees and laid before the association for ratification. Through a misunderstanding during the absence of the secretary of the Machine Tool Builders' Association the agreement was not brought before the entire association as intended, but before a special meeting. It was laid upon the table. The dealers will now bring it to the attention of the association again, doubtless for action at the April meeting of the Machine Tool Builders in Atlantic City. The dealers have drawn up a set of resolutions ratifying the action of their committee as shown in the "agreement," and it is hoped that everything will be settled favorably at Atlantic City.

The Resale Price.

In the executive session held on Thursday morning the question of prices was the one commanding the greatest amount of attention. The evil effects of price cutting on the part of both dealer and manufacturer were thoroughly aired, and the solution of the problem was shown to be the establishment of a "resale price," provided everybody lives up to it. George T. McIntosh of the McIntosh Hardware Corporation and T. James Fernley, secretary-treasurer of the National Hardware Association, told how the "resale price" idea was working most successfully in the Hardware trade. It was shown that this solution of the problem worked to the best interests of both manufacturer and dealer, eliminating entirely the useless price cutting indulged in so frequently. The "resale price" it was explained is simply a price set upon his goods by the manufacturer below which the dealer is not allowed to sell. Naturally the manufacturer will not sell below that price either. This insures a profit to the dealer and makes it no object for the consumer to buy of the manufacturer direct. Resale prices have been established on a number of lines in the supply trade and with complete satisfaction, indicating that the movement has already gained considerable impetus. These lines include among others: Chucks, tool holders, chain pipe vises, sandpaper, emery cloth, flint and garnet paper, ratchet wrenches, drop forged wrenches, hack saw blades, taps and dies, reamers, chain hoists and arbor presses. The attitude of the association toward manufacturers who are upholding the "resale price" is plainly expressed in a resolution passed on the subject and reading as follows:

Resolved, That this convention of the National Supply and Machinery Dealers' Association heartily endorses the action of the manufacturers who have shown their disposition to co-operate with us. Be it further

Resolved, That the members of this association support such manufacturers in every practicable manner to encourage and establish this policy.

Postal Matters.

George T. McIntosh warned the members of the danger of the possible enactment of legislation establishing a parcels post branch of the United States mail service. He indicated that the catalogue house would be the only institution benefited should such a measure succeed, and pointed out the fact that the encroachment of the catalogue house would be effected at the expense of the legitimate trade. The stand taken by the association on this question is evidenced by the resolution printed below:

Whereas, A parcels post system in this country is not demanded by the necessities of the people, and believing that the adoption of such a system would create a very large postal deficit, be it

Resolved, That we oppose the movement for such a system and address communications to our members of Congress, urging them to vote against any parcels post bill.

As a retaliatory measure Mr. McIntosh advocated the urging of the adoption of a 1-cent postage rate for first-class mail matter, and this is also embodied in a resolution which is as follows:

Whereas, The entire community is charged by the Government a rate for first-class mail matter several times the actual cost of the service rendered, be it

Resolved, That we use our influence as an association, as well as individuals, for the adoption of a 1-cent rate in first-class mail matter.

Under the heading of

Trade Literature and Price Books

some very interesting discussion was evolved, several of the dealers describing their methods of taking care of this important branch of the trade. The object of the discussion was to adopt a standard size or list of sizes to govern these booklets. The size of the leaf finally decided upon is 7 3-16 inches long and 3 15-16 inches wide. This is for pocket price book use. The particular leaf recommended has rounded corners and three perforations. The perforations are ¼ inch in diameter, one being placed about ½ inch from the bottom of the sheet and another ½ inch from the top. The third is equidistant between the two. All are placed 3-16 inch from the edge of the sheet.

Although this is not the size of sheet recommended by the Southern Supply and Machinery Dealers' Association it is held to be a size which is being universally adopted by manufacturers of machinery and supplies throughout the country. It makes a book of convenient size to be carried about in the pocket. A number of the most prominent dealers present spoke in support of this size of leaf and outlined many advantages for it. The increased use of loose leaf price books by salesmen for the keeping of illustrations of machines and all information pertaining thereto was dwelt upon, and it was said to be desirous that all manufacturers sending out information to be carried about by salesmen use this size of leaf. The association approved the recommendation that the few manufacturers who have not already done so be requested to get out selling literature for the salesmen of the dealers on the size of leaf adopted.

The Cash Discount.

In view of the widespread abuse of the cash discount this subject was brought forward to ascertain the feeling of the members concerning ways and means for correcting the evil. There was a variance of opinions as to just what should be termed a cash discount. It was freely admitted that where the practice was allowed to continue the term would be stretched by some purchasers to a point carrying the transaction far beyond what might even with the greatest leniency be termed a cash sale. It was the consensus of opinion, however, that it would not be wise to take any definite steps at this time as an organization. In different localities it was admitted conditions are different. Certain customers may have peculiar ideas concerning the matter, which may appeal to one concern favorably and just the opposite to another. The dealers too stand between two fires on this question, having the manufacturer from whom they buy on one side and the consumer to whom they sell on the other. On the whole it was decided that if any action can be taken in the subject it should be left to the local associations. The local association in Cleveland has taken a stand in the matter, which has been attended with good results. The Pittsburgh Association also deals with this matter as with all credit affairs in a manner which protects its members.

THE OPEN SESSION.

Following the executive session Thursday afternoon the doors were thrown open and the manufacturers were invited into the meeting so that they might have an opportunity of expressing before the dealers any views they might have regarding the topics before the convention. It turned out to be a love feast, every manufacturer who said a word being glad to co-operate with the dealer in anything he might do to establish better conditions. The speakers all endorsed the stand taken by the association on the "re-sale price" question and pledged themselves to uphold it.

E. B. Bailey of the Horton Chuck Company was the first manufacturer called upon for "a few remarks." He said that the principle chuck manufacturers were in an association of their own, and he could not therefore say just what the makers of chucks were going to do. Speaking entirely on his own responsibility and for himself only, he said that he approved the "re-sale price" idea. He then continued as follows: "It has occurred to me that I might give you my idea as to how the business of placing chucks upon the market should be handled. At present every dealer seems to want an assortmnet of all the chucks made. That is a mistake. My idea is that it would be more profitable to you if you went to each of the makers of chucks and selected the line that impressed you as being the best in quality and price, and then establish your store as headquarters for that chuck. You could then give reasons why the consumer ought to purchase the chuck you handle and have a complete assortment constantly on hand. As it is now in most stores, a dealer has three or four sizes of each make and not a complete assortment of any. On my plan both the dealer and manufacturer could make more money. One concern adopted this scheme after six years of consideration and now is making ten times as much money on chucks as when it handled every line made. I also want to speak of the consignments that some dealers carry. The dealers allow the goods to get rusty and bruised, and as a result never have anything good to offer the consumer, and the results are unsatisfactory to everybody concerned."

F. H. Brown of the Brown & Zortman Machinery Company, Pittsburgh, asked Mr. Bailey his attitude toward lathe and milling machine builders who purchased chucks to be placed upon the machines they built. He replied that they are given the same consideration as the trade, inasmuch as they buy from 50 to 400 chucks at a time, all of which they sell again as parts of their machines. This he said entitled them to the trade price.

Mr. Brown then asked whether they would be held to the re-sale price. "Yes, if there's any way to hold them," responded Mr. Bailey, adding that he thought it up to the association to hold them to that price.

T. James Fernley rose after Mr. Bailey's last remark and asked him if he would be prepared to sell to none but members of the association, to which Mr. Bailey replied in the negative. Mr. Fernley suggested that the Chuck Makers' Association should withhold profits on their goods for six months as a guarantee against the cutting of the re-sale price.

Mr. Bailey stated that he thought that those maintaining the resale price should be favored, after which President Strong commented with a smile, "Bailey has always been one of our best friends in the chuck business."

Samuel L. Moyer, vice-president of the Lunkenheimer Company, Cincinnati, was next called upon. He said: "Our company has gone on record for standing by the middleman. We believe that the consumer should pay a certain fair amount above the manufacturers' and dealers' price. Our policy in selling direct is to charge enough to the consumer to make it possible for you to make the sale."

E. F. Cooper of Henry Disston's Sons, Incorporated, Philadelphia, endorsed Mr. Moyer's remarks as applying also to his company. He urged, however, that the dealer must reciprocate, and stated that when his company protects the dealer it demands similar protection. After telling of a very flagrant case of violation of agreement on the part of a dealer, he said that a manufacturer cannot afford to stick to the dealer unless the latter agrees to handle his goods exclusively and does it.

Ralph Templeton of the Whitman & Barnes Mfg. Company, Chicago, stated that after canvassing the country for many years his company had recently reversed this method of selling and is now marketing its product through the jobber and dealer. His company, he said, does a great deal of missionary work, which naturally works up trade that goes direct to the dealer. He praised the local association, stating that it prevented that useless sort of competition among dealers which results disastrously to every one involved.

J. E. Osgood of the Carpenter Tap & Die Company, Pawtucket, R. I., pledged his concern to do all in its power to aid in bringing about the success of the association. He said: "We have always protected the dealer and it has been annoying to see the dealer split that commission beyond what we thought to be a legitimate profit. We are pleased to see that you are doing things to help the manufacturers. The makers of taps saw things going rather low and we got together and formed an association. We soon found that we could safely repose confidence in one another and now are a happy family. When you do solve the problem before you I feel assured that every tap manufacturer making standard goods will be glad to help you."

C. E. Thwing of the Whitcomb-Blaisdell Machine Tool Company, Worcester, Mass., congratulated the association upon the progress it was making in the direction of correcting trade evils and hoped that the harmony manifested at the meeting would be continued throughout all of the future relations of the manufacturer and dealer.

M. A. Coolidge of the Fitchburg Machine Works, Fitchburg, Mass., said in part: "I want to attend strictly to the manufacturing end of the business, making the best product I know how, and leave it to the dealer to do the selling. I believe in protecting him just as far as is consistent with general practice. Last November we raised our prices before similar action was taken by

the Machine Tool Builders' Association and we heard of no complaint from the dealer."

V. F. Hatch of the Diamond Machine Company and the Builders' Iron Foundry of Providence, R. I., said that the absence of complaints was the best evidence he had that everything was proceeding smoothly between jobber and manufacturer in his case. He said: "Our aim is to make the price to the consumer sufficiently large to give the dealer a chance to make the sale. Between the consumer and dealer, however, we have no way of knowing what is going on, and we have at present no way of correcting wrongs that may creep in. The only way out of it is for us to work together."

George D. McIlvaine told of the very satisfactory experience which the Pittsburgh local had with the Lunkenheimer Company concerning direct selling in that territory. George Puchta was called upon by President Strong to say a word showing the attitude of the dealers toward the manufacturers who propose to work in accord with the objects of the association. He said, in part: "The condition which is confronting us is one for which neither the dealer nor the manufacturer is to blame directly. It has been brought about by a change of general conditions. I have been in the supply business for 25 years, and in that time have seen liberal profits gradually disappear as prices went down. Manufacturers have done things that we dealers didn't approve of, and doubtless we did things that proved just as injurious to the general state of trade. Take certain lines where there are certain large individual consumers. Some of the latter are so large that they insist upon buying direct from the manufacturer. In such cases every one has done just what he thought was the best he could, having no one to consult. The result was a conflict of interests which we are now in a position to eliminate. Conditions now are changed, and in this age we need co-operation. I believe we are on the right line and that the manufacturer and dealer are perfectly willing to co-operate as long as their demands can be kept within reason. This is no question of sentiment, but one of profit. The manufacturer must get the production of his goods down to the most economical basis possible, and then must decide the cheapest way of distributing them. This, I believe, can best be accomplished through the dealer, especially under the improved conditions now being brought about.

A. E. Brion of Peter A. Frasse & Co., New York, introduced a resolution against the compulsory adoption of the metric system in this country, which was carried.

The balance of the meeting was devoted to executive work, the principal action being

The Election of Officers.

All of the present elective officers were re-elected for another year, as follows:

President, E. E. Strong of the Strong, Carlisle & Hammond Company, Cleveland.

First Vice-President, W. A. Somers, Somers, Fitler & Todd Company, Pittsburgh.

Second Vice-President, Alfred Marshall, Marshall & Huschart Machinery Company, Chicago.

Secretary-Treasurer, A. T. Anderson, Cleveland.

Executive Committee for two years: George T. McIntosh of the McIntosh Hardware Corporation, Cleveland, and C. A. Strelinger of the Chas. A. Strelinger Company, Detroit.

A. E. Brion of Peter A. Frasse & Co., New York, and George Puchta of the Queen City Supply Company, have another year to serve on the Executive Committee.

The appointment of committees for the ensuing year was deferred by the president. The association voted to add to these a new one to be known as the "Small Tool Committee."

It was voted to change the constitution so as to change the time of the annual meeting from the second Wednesday in February to the second Wednesday in May. A slight error that crept into the original constitution which provided two articles concerning the appointment of a secretary-treasurer was corrected, the tautology being eliminated.

In view of the fact that the change of the date brings the next annual meeting 16 months hence, there was some discussion in favor of holding a special meeting before the next annual meeting. No action was taken, as the constitution clearly provides for the calling of a special meeting upon the request of ten members on 15 days' notice. It is probable that one will be called in about six months.

The Banquet.

On Thursday evening this function proved a most delightful one to every one present. There was a goodly representation of the ladies on hand. George D. McIlvaine acted as toastmaster and filled that position in his usual inimitable and happy manner for which he has gained an enviable reputation. In his opening remarks he brought out a round of hearty applause when he stated that the organization had passed over the dead center.

President E. E. Strong in a strong, straightforward talk thanked the members for their support of the last year and urged them to take up the work with renewed zeal during the coming year. He concluded by relating that at the very beginning of his business career he adopted the policy, "honesty is the only policy," and said that on this basis there should be no doubt as to the successful continuance of the association.

J. H. Drury, the retiring secretary-treasurer, told how sorry he felt at having to leave so large a body of friends, but stated that his absence would only be so far as his official capacity was concerned, and that as a manufacturer he would continue to be very much in evidence.

He was followed by his successor in office, A. T. Anderson, who delivered a powerful address on the duties of the business man as a citizen.

George Puchta gave a pleasing after-dinner talk, interspersed by a number of funny stories, but having a vein of bright thought along the line of the aims of the association.

W. B. Yost, general manager of the McIntosh Hardware Corporation, led the dealers in singing a chorus which was a parody on the popular song, "Everybody Works But Father," the manufacturers enjoying the freedom from labor acceded to the abused parent in the song.

Rev. Charles S. Walkley, chaplain Artillery Corps, U. S. Army, delivered a magnificent address, the keynote of which was "Fair Play in Business."

Joseph Campbell of the Diamond Saw and Stamping Works, Buffalo, responded on behalf of the manufacturers, pledging his support to the association in its worthy efforts and congratulating the officers of the organization upon the excellent showing they have made for their association in the brief period of its existence. He concluded by wishing it a continuance of its success and the fullest measure of prosperity for the future.

The following were present:

Members.

A. W. Wiggleswarth, Hill, Clarke & Co., Chicago.
C. A. Clarke, Hill, Clarke & Co., Boston.
Lester B. Churchill, Vandyck-Churchill, New York.
W. A. Somers, Somers, Fitler & Todd Company, Pittsburgh.
F. K. Fitler, Somers, Fitler & Todd Company, Pittsburgh.
W. T. Todd, Somers, Fitler & Todd Company, Pittsburgh.
P. A. Himrod, Erie Mfg. & Supply Company, Erie, Pa.
Charles Bond, Charles Bond, Philadelphia, Pa.
Frederick Hoernel, Hoernel Hardware Company, Racine, Wis.
W. E. Shipley, W. E. Shipley, Philadelphia, Pa.
E. E. Strong, Strong, Carlisle & Hammond Company, Cleveland, Ohio.
L. J. Hammond, Strong, Carlisle & Hammond Company, Cleveland, Ohio.
W. R. Colcord, W. R. Colcord Machine Company, St. Louis, Mo.
Alex. Paton, T. B. Rayl Company, Detroit, Mich.
Robert F. Hunter, The Hukill-Hunter Company, Pittsburgh, Pa.
George Vonnegut, Vonnegut Hardware Company, Indianapolis, Ind.
William M. Pattison, W. M. Pattison Supply Company, Cleveland, Ohio.
Alfred Marshall, Marshall-Huschart Machinery Company, Chicago.
Louis J. Ernst, Louis Ernst & Sons, Rochester, N. Y.
C. J. O'Hara, C. C. Wormer Machine Company, Detroit, Mich.
George D. McIlvaine, Pittsburgh Gage & Supply Company, Pittsburgh, Pa.
W. B. Patterson, The Patterson Tool & Supply Company, Dayton, Ohio.
A. E. Brion, Peter A. Frasse & Co., New York.
George Puchta, Queen City Supply Company, Cincinnati, Ohio.

W. B. Yost, McIntosh Hardware Corporation, Cleveland, Ohio.
J. W. Wright, J. W. Wright & Co., St. Louis, Mo.
C. C. Coventry, Cleveland Tool & Supply Company, Cleveland, Ohio.
S. S. Bradley, Patterson, Gottfried & Hunter, Limited, New York.
William Burger, Patterson, Gottfried & Hunter, Limited, New York.
John A. Clark, Frick & Lindsay Company, Pittsburgh, Pa.
F. H. Brown, Brown & Zortman Machinery Company, Pittsburgh, Pa.
George T. McIntosh, McIntosh Hardware Corporation, Cleveland, Ohio.
W. C. Varnum, Erie Mfg. & Supply Company, Erie, Pa.
W. E. Frick, Frick & Lindsay Company, Pittsburgh, Pa.
O. P. Meckel, Baird Machinery Company, Pittsburgh, Pa.
William J. McDowell, McDowell, Stocker & Co., Chicago.
F. B. Scott, Syracuse Supply Company, Syracuse, N. Y.
William T. Johnston, The Wm. T. Johnston Company, Cincinnati, Ohio.
George H. Morris, E. K. Morris & Co., Cincinnati, Ohio.
C. S. Farquhar, Chandler & Farquhar Company, Boston, Mass.
Samis B. Shaw, Machinists' Supply Company, Chicago.
Arthur E. Gross, Philip Gross Hardware Company, Milwaukee, Wis.
A. M. Maddock, Maddock & Co., Philadelphia, Pa.
A. T. Anderson, Cleveland, Ohio.
J. H. Drury, Athol, Mass.
E. H. Refior, Bostwick-Braun Company, Toledo, Ohio.
Charles A. Strelinger, Chas. A. Strelinger Company, Detroit, Mich.
John N. Derby, Manning, Maxwell & Moore, New York.

Guests.

H. C. McKear, Standard Tool Company, Cleveland, Ohio.
E. B. Bailey, Horton Chuck Company, Windsor Locks, Conn.
Joseph Campbell, Diamond Saw & Stamping Works, Buffalo, N. Y.
W. H. Glatt, New York Leather Belting Company, New York.
Lewis H. Morgan, Ridgway Machine Tool Company, Ridgway, Pa.
Harry Wise, *The Tradesman*, Chattanooga, Tenn.
Israel H. Johnson, Jr., I. H. Johnson, Jr., Company, Philadelphia, Pa.
Elmer Crawford, *Domestic Engineering*, Chicago.
T. James Fernley, National Hardware Association, Philadelphia, Pa.
E. F. Cooper, Henry Disston & Sons, Inc., Philadelphia, Pa.
Fred W. Schultz, *The Iron Age*, New York.
E. G. Buckwell, Cleveland Twist Drill Company, Cleveland, Ohio.
E. H. Young, Cleveland Twist Drill Company, Cleveland, Ohio.
E. Bertram Pike, Pike Mfg. Company, Pike, N. H.
F. A. Stanley, *American Machinist*, New York.
David Bell, The David Bell Engineering Works.
Edwin E. Bartlett, Edwin E. Bartlett, Boston, Mass.
J. E. Osgood, The J. M. Carpenter Tap & Die Company, Pawtucket, R. I.
A. C. Langston, Jenkins Bros., New York.
A. C. Hawkins, T. R. Almond Mfg. Company, Brooklyn, N. Y.
C. E. Thwing, Whitcomb-Blaisdell Machine Tool Company, Worcester, Mass.
W. P. F. Ayer, Walworth Mfg. Company, Boston, Mass.
C. H. Durham, E. C. Atkins & Co., Indianapolis, Ind.
M. A. Coolidge, Fitchburg Machine Works, Fitchburg, Mass.
Samuel H. Groser, R. K. Carter & Co., New York.
Samuel L. Moyer, The Lunkenheimer Company, Cincinnati, Ohio.
Bernard J. Hausfeld, The Lunkenheimer Company, Cincinnati, Ohio.
Ralph Templeton, The Whitman & Barnes Company, Chicago.
R. R. Newell, John A. Roebling's Sons Company, Trenton, N. J.
F. A. Hall, Yale & Towne Mfg. Company, New York.
V. F. Hatch, Diamond Machine Company, Providence, R. I.

Drawback on Saw Plates.—The Treasury Department has prepared a series of regulations for the allowance of drawback of duty paid on imported steel plates manufactured by the process of tempering into plates for saws intended for export. The regulations, which have been prepared on the application of the Simonds Mfg. Company, Fitchburg, Mass., contain the usual stipulations as to entries and provide that in liquidation the quantities of imported steel plates which may be taken as the basis for allowance of drawback may equal the quantities declared in the drawback entry, after official verification of exported quantities, provided they shall not exceed the number of plates exported, and the identifying number in each plate exported shall correspond with that appearing in the import invoice.

An interesting procedure marked the raising of the lake steamer W. E. Corey by the use of Westinghouse air brake pumps. The Corey went aground on Gull Island, Lake Superior, during a severe gale on November 28. On December 1 men and pumps were sent to the work. Ten 11-inch and ten 9½-inch pumps were distributed along the deck of the steamer and connected to force air into 13 of the air tight compartments in the vessel to displace the water. This work was commenced December 2, and while the air was forced into the compartments by the pumps the leaks were repaired by boiler makers as fast as they were discovered, either by being patched or by the use of cement. The preliminary work of stopping leaks required until December 9, about 3 p.m., when all of the pumps were set to work forcing air into the compartments. On the following day at 7.30 a.m. it was found that the boat had been raised 4 feet and sufficient water removed to allow the steamer Houghton to pull the Corey into deep water. In raising this vessel it is estimated that from 3 p.m., December 9, until 7.30 a.m., December 10, about 6000 tons of water were removed by the 20 pumps.

Pacific Coast Trade Movements.

SAN FRANCISCO, CAL., February 15, 1906.—After a quiet month trade with the Orient has started up with a good deal of activity. The Siberia cleared January 27 with a cargo of almost $1,000,000 in value, of which $714,717 was for China. This speaks well for the Chinese trade through this port, despite the boycott, which of course has more or less influence. The greater part of the shipments to Chinese ports by the Siberia consisted of domestics, ginseng and similar commodities. There have been very light shipments of flour, the principal reason apparently being that the State has not sufficient surplus for exportation, not that the Chinese have ceased buying our flour. The bulk of the Japanese shipments by the Siberia consisted of raw cotton, machinery, &c. Among the latter were locomotives valued at $37,000, machinery valued at $51,099, &c.; to Honolulu there were seven automobiles valued at $4500; to Pekalogan, a new port in the East Indies, there were 53 packages of machinery valued at $2586, an entirely new venture, as far as San Francisco is concerned.

The America Maru, which went out January 29, was the first steamer of Japanese nationality to take out a cargo for a long time, the war having put a stop to the carrying of freight by a vessel of that description. For China she had 3980 kegs of wire nails valued at $8378. The Sierra for Australia had a good cargo, but not as much of machinery, &c., as on other occasions. She had automobiles valued at $2692 for Launceston, Tasmania, where shipments of that description are very seldom made, and here I am reminded that since the autocar came into fashion bicycles cut a very poor figure in our list of exports, although formerly steamers to Australian ports took out thousands of dollars' worth every trip.

Business conditions here are generally fair for the season, although complaints are heard of trade being quiet. The reports from the Clearing House, which run all the way from $7,000,000 to $10,000,000 weekly in excess of those in the early part of 1905, seem to tell an entirely different story. The prospects for the crops continue very good.

Vessels of the American Hawaiian Steamship Company continue to bring large quantities of machinery, iron pipe, &c., around the Horn, as they make the trip in 62 to 68 days from New York. The Pacific Mail steamers, which take from 22 to 26 days on the Pacific side from the Isthmus of Panama, in addition to the time spent from New York to Colon, have not much advantage over them. They carry freight of these descriptions for $9 a ton. This is about the only competition on this side with the Pacific Mail in this line, as, although the Isthmus Railroad has been thrown open free to all comers, nothing in the shape of steamships ready to carry freight seems to be anxious to take advantage of the opportunity offered. J. O L.

A London cablegram says that the White Star liner Adriatic, now under construction by Harland & Wolff of Belfast, will be 710½ feet long, with a depth of 50 feet, and will be the largest vessel in the world, her tonnage being 25,000. The Baltic of the White Star line has held the record, having a tonnage of 23,876, but her length is 15 feet greater than that of the Adriatic.

The Palmers' Docks Cableway.

A unique and extremely simple overhead traveling hoist equipment for shipbuilding service has been erected in the yards of the Palmers' Shipbuilding Company, Limited, at Jarrow-on-Tyne, England. The complete plant spans the vessel under construction and commands all parts of the work, as shown in the illustrations, for the use of which we are indebted to the *Scientific American* and *The Engineer* (London). The equipment really comprises three independent cableways on which are operated hoists having a capacity of 3 tons each. These are for the most part used individually, but where an extra heavy or unwieldy piece of material is to be handled two or more hoists may be used in unison. The design was worked out and built by John M. Henderson & Co.,

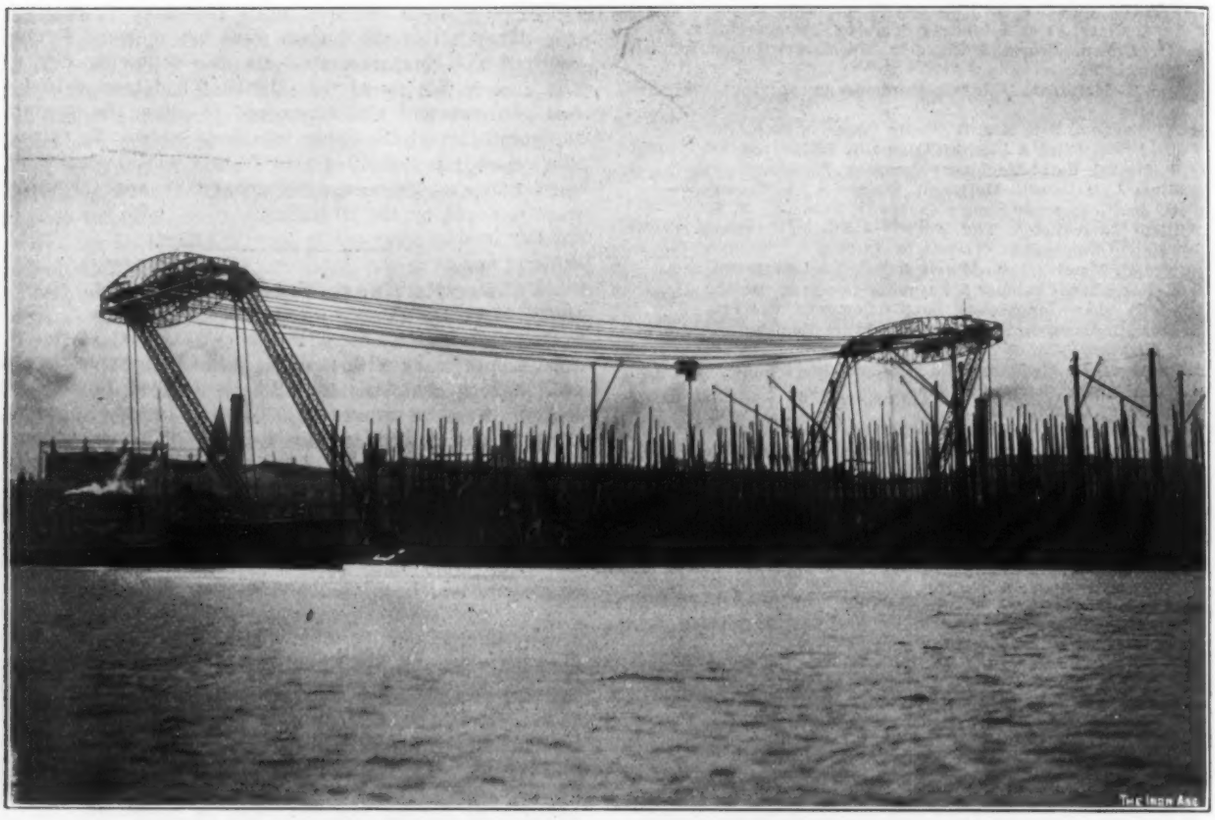


Fig. 1.—The Triple Cableway at the Palmers' Shipbuilding Yards, Jarrow-on-Tyne, England.

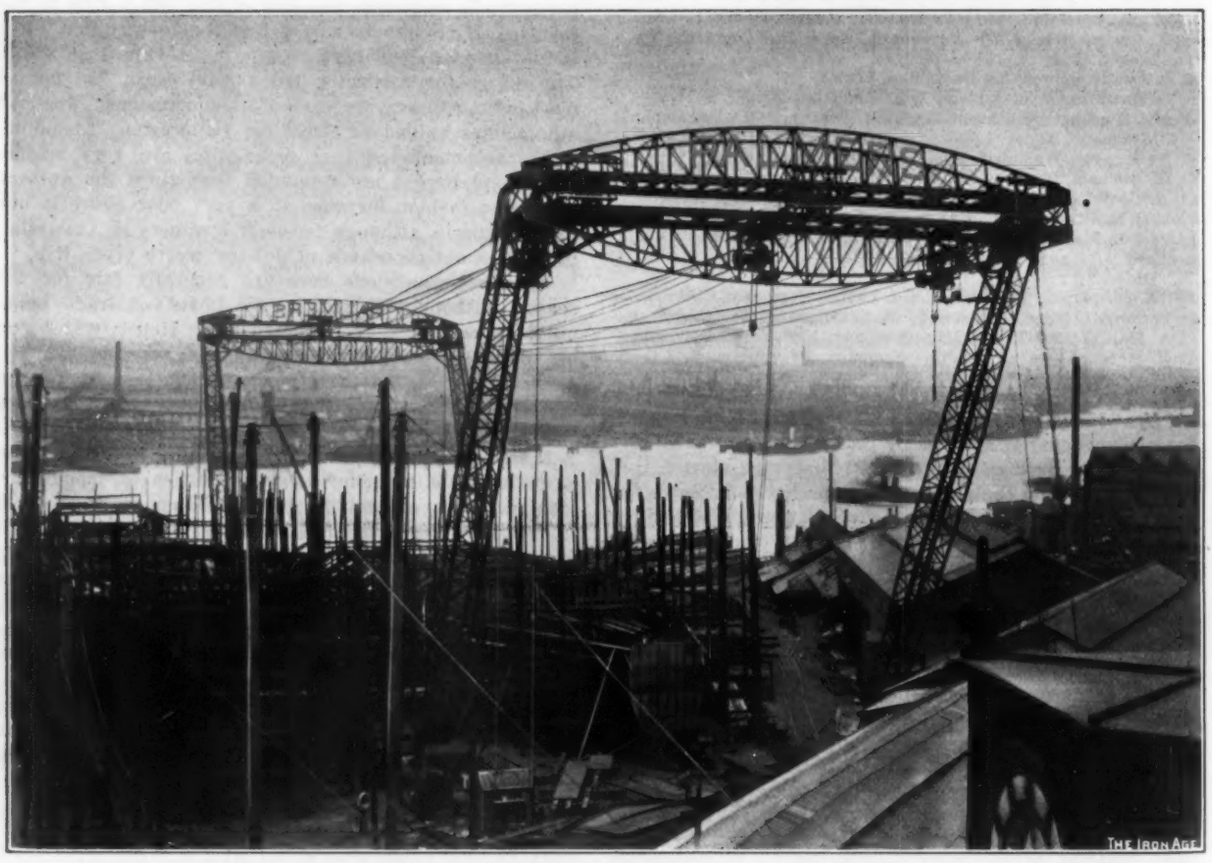


Fig. 2.—The Cableway from Another Viewpoint, Taken While the Battle Ship Lord Nelson Was Under Construction.

Aberdeen, Scotland, at the suggestion of Mr. Twaddell, the shipyard manager, when it was found that the usual appliances were not equal to carrying out a recent order from the British Government with sufficient rapidity. This particular contract was the building of the 16,500-ton battle ship Lord Nelson, which is to have a beam of 79 feet and a total length of 406½ feet.

The clear longitudinal span of the cableway is 505 feet and the transverse span 100 feet. The supporting structure at the two ends are identical, and, as clearly shown in Figs. 1 and 2, consist of outwardly leaning columns surmounted by cross girders. Fig. 3, which is merely diagrammatical, indicates better than the half-tones how completely the apparatus covers the work in hand. The columns are 125 feet long, tapering at both ends, are inclined at about 58 degrees and are pivoted at their lower ends and mounted on substantial concrete foundations. The cross girders are in two parts, each of parabolic beam contour, placed with their straight edges facing one another and leaving a space between. The main cables are fastened at the ends to movable carriages, so that the load may be transported transversely by shifting the cables laterally. Due to the weight of the columns and cross girders tension is placed on the cables, keeping them from sagging materially, even when the load is near the middle of the cableway, and in addition vertical guys anchor the upper ends of the supporting columns to the ground. At one end the overhanging supports give the hoists command of a works railroad track, so that in one handling material may be removed from the freight cars to the point where it may be needed. Similarly, the opposite end overhanging the water affords direct communication with the holds of vessels moored at the end of the pier, making possible their direct unloading and also frequently facilitating the repairing of ships brought to that location.

An interesting construction is to be seen in the carriages from which the cables are suspended. Obviously they must be so mounted as to sustain their weight and the horizontal pull of the cables. On the lower chord of the upper section of each cross girder and on the upper chord of each bottom section are rails extending their full length. Upon these the carriages are hung on vertical flanged wheels, while horizontal wheels bearing against the top and bottom members of the cross girders resist the tension of the cables. The latter sets of wheels are the propelling wheels, or those used to travel the carriages. Electric motors provide the power through worm and spur gearing, three-phase alternating current being used at a voltage of 440. To insure the parallel movement of the cables the motors on the two carriages for each cable run at exactly the same speed and are controlled in common, so that they operate simultaneously. These carriages and through them the cableways may be traveled laterally at a speed of 25 feet per minute.

The trolley hoists, or load carriages, each carry an operator and all the controlling devices for their respective cableway units. In this position the operator is always directly over the work, where he can to the best advantage manipulate the hoisting, lowering and longitudinal and transverse movements. The longitudinal speed of a load carriage is about 600 feet per minute and the hoisting speed, with a 3-ton load, is 100 feet, and with a 1-ton load 150 feet per minute. The two motors on the load carriage and the motors on the cable carriages are supplied with current and controlled through two sets of three wires paralleling the main cable and suspended from the carriages in the end supports. It is said that the ease and rapidity with which a load can be lifted, conveyed and accurately positioned is very remarkable, and that this experimental installation has proved so successful that a second and much larger one, capable of spanning two vessels side by side, 700 feet long, will shortly be erected. Probably in the latter more than three hoists will be provided, although that number has been ample where only one vessel is served.

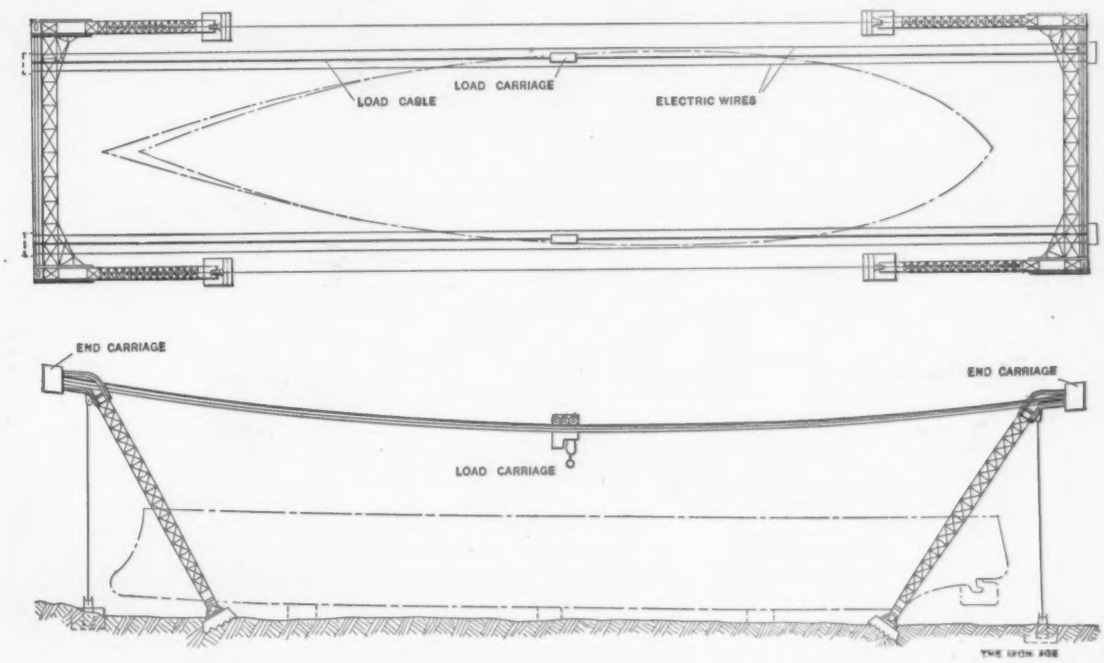


Fig. 3.—Diagram, Plan and Elevation Showing the Complete Command of All Parts of the Vessel Being Built.

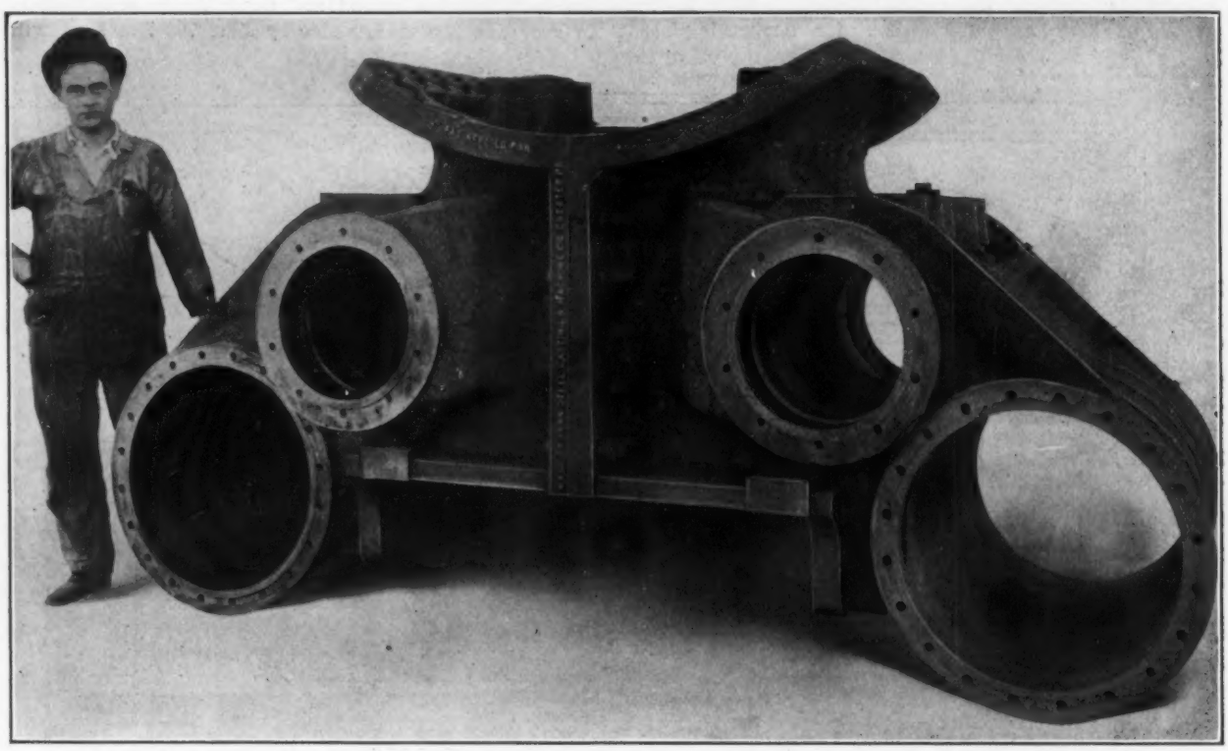
As compared with overhead gantrys or overhead and traveling gantry cranes, which represent the usual practice for shipbuilding service, the cableway certainly has the advantage of cheaper first cost and it is also claimed to be cheaper to operate and more rapid in its work. It is mentioned, for example, that all of the older appliances required the moving of a much greater dead load for every transporting movement and experience has demonstrated that the cableway has brought the work of construction further along than would have been possible in the same time with the former equipment.

It is interesting to note that the leaning tower feature is not new and that the idea originated in this country, having been first used in the balanced cableway, patented some years ago by W. F. Brothers, Brooklyn, N. Y. Mr. Brothers states also that he holds English patents and submitted a design for this specific installation.

It is officially denied that the Republic Iron & Steel Company intends to break off relations with the Amalgamated Association. The company will confer with that organization this year on the wage scales governing puddling and finishing mills as heretofore.

Casting Locomotive Cylinders in Steel.

An important innovation in steel foundry work has been made recently in the successful casting of locomotive cylinders by the Penn Steel Casting & Machine Company, Chester, Pa. From the first use of locomotives cast iron has been the material employed for cylinders, and in the evolution of locomotive construction many changes in design have come. For the heavy consolidation locomotives of recent years the designs have called for larger cylinders, with a considerable increase in thickness of material. Railroad mechanical engineers have been loath to add so greatly to the amount of metal in cylinders, the aim being to gain as far as possible from the weight of other parts of the machine and put more and more into increased strength and capacity of boilers. They have sought for greater tensile strength and ductility in the cylinder metal, so as to permit of lighter sections there and at the same time increase upon the strength now secured from cast iron. Heretofore steel foundrymen, appreciating the difficulties surrounding the manufacture of cast iron cylinders, have considered it impracticable to produce cylinders in steel.



The First Locomotive Cylinders Cast in Steel at the Foundry of the Penn Steel Casting & Machine Company, Chester, Pa.

The problem was taken up by the Penn Steel Casting & Machine Company, which has cast and machined several steel cylinders for the New York Central & Hudson River Railroad Company's heaviest consolidation engines. The product is shown in the accompanying illustration. It has been found possible to cast thinner sections in steel than those of cast iron and from material equal to that of steel forgings. Further diminution in the section is expected to be attained. The cylinders complete for a locomotive of the heaviest type—one weighing 200,000 pounds on the drivers—weigh 16,000 pounds, or 8000 pounds for each half. The valve chambers and all passages connecting therefrom are included in the cylinder casting, and the coring problems connected with this part of the work, it can be appreciated, are among the most difficult features. The cylinders are 23 x 32 inches, the thickness of the barrel being 1½ inches, while the cast iron bushing completely lining the cylinder is ¾ inch thick. The valve chambers are 16 inches diameter and are also bushed. The cylinders were subjected to hydrostatic pressure at the Chester foundry and proved to be thoroughly tight under a pressure of 600 pounds to the square inch. Tests of 2-inch bars cast at the same time showed the following physical properties: No. 1 bar—Elastic limit, 34,000 pounds per square inch; tensile strength, 72,400 pounds; elongation, 30 per cent.; reduction of area, 40.9 per cent. No. 2 bar—Elastic limit, 35,000 pounds; tensile strength, 74,800 pounds; elongation, 28 per cent.; reduction of area, 38.2 per cent. In the first case the finished casting weighed 7810 pounds; in the second case, 7740 pounds without the cast iron linings.

The New York Central Railroad expects to have the first pair of these cylinders in use in the coming month. Others are to follow. The Penn Steel Casting & Machine Company has applied for a patent on the product.

Pig Iron Conditions in Belgium.—The production of pig iron in Belgium in 1905 was 1,350,451 metric tons, as compared with 1,307,399 tons in 1904, a gain of about 43,000 tons. At the close of 1905 there were 35 furnaces in blast and six out of blast. The production of Bessemer and basic iron in 1905 was 1,027,709 tons, of forge 220,479 tons and of foundry iron 102,263 tons. The Belgian Pig Iron Syndicate, which recently dissolved, had been in existence about 20 months. When it was formed most of the members worked up either a portion or nearly all their output of pig iron. In view of the improved demand for finished material in recent months all the output of constituents owning mills was finished in their own works, thus taking them out of the pig iron market. Differences arose with the merchant blast furnace owners and the dissolution of the syndicate followed, though it had been planned to extend over a period of five years. An increase of about 50 cents a ton was announced concurrently by the coke syndicate to take effect at the beginning of the second quarter. There is some complaint on the part of the blast furnace owners of an attempt by the coke syndicate to compel them to tie up at a price not yet determined for the remainder of the year.

Alaska tin is now being smelted on a small scale at Seattle, Wash. Press dispatches from that city mention John Schram of the Washington Trust Company as one of the parties who erected the smelter. He is quoted as stating that enough has been demonstrated to convince those interested that "there is a great future for Alaska tin." The smelter is to be enlarged in the near future to handle tin ore concentrated at Teller, Alaska.

The Strang Independent Electric Car.

A gasoline electric railroad car furnishing its own power and particularly adapted for interurban service on steam railroad tracks has been perfected by the Strang Electric Railway Car Company, 15 Wall street, New York City. The power system is similar to that employed on the Hicks gasoline electric motor car, described in *The Iron Age* May 18, 1905. It comprises a gasoline engine direct connected to a dynamo supplying current to the motors on the trucks, while a storage battery dampens the fluctuations in load. The engine is able to run at a practically constant normal speed, at which its efficiency is a maximum, and when the car is running on a level track the motors use the full supply. When the car is coasting the storage batteries are charging, and on an up grade or during starting and accelerating the storage batteries supplement the power of the engine. This combination, considered merely as a clutch and change gear, is believed to be superior to any mechanical appliance, for the electric motors afford a variety of speeds and an elasticity that would not be possible with direct drive from a gasoline engine.

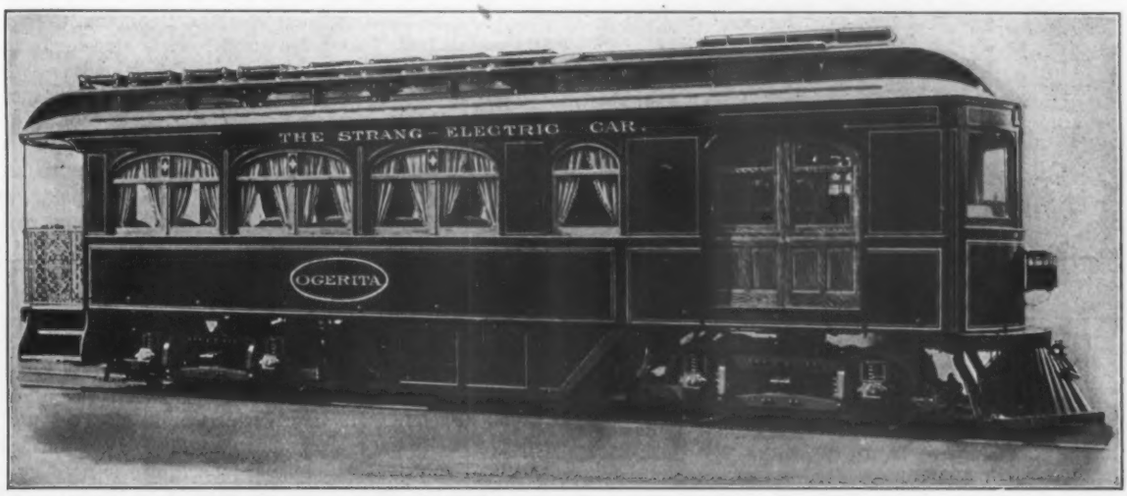


Fig. 1.—A Special Car Built by the J. G. Brill Company for the Strang Electric Railway Car Company.

The car illustrated in Fig. 1 was built by the J. G. Brill Company of Philadelphia, from plans and specifications furnished by the Strang Electric Railway Car Company, and is mounted on high speed trucks of the Brill No. 27-E type, having rolled steel wheels. The car has already made trial trips on the Baltimore & Ohio Railroad between Philadelphia and Washington, and has been demonstrated before officials of the Pennsylvania Railroad Company and the American Locomotive Company and other prominent railroad men. On February 19 the car left New York City for a trip to San Francisco, by way of the West Shore, New York Central, Michigan Southern, Rock Island, St. Louis & San Francisco and Southern Pacific railroads. Several more cars of the same type, which will measure 52 feet 9 inches over all, are now in course of construction. The cars will have smoking and passenger compartments, with a total seating capacity of 42, and will be used by the Missouri & Kansas Interurban Railway Company over the Santa Fé trail from Kansas City, Mo., to Olathe and southwestern Kansas.

The principal advantage of the Strang system is that it requires an engine only large enough to develop the average power used. The engine is of special construction, and includes a number of governing devices which are unique in design and operation. The general scheme of the system is shown diagrammatically in Fig. 2 and includes a gasoline engine, E, with a direct connected generator, D, electric transmission and controller, C, direct electric connection between the generator and the truck motors M and M, and a storage battery, B.

The engine, which was designed by the company's chief engineer, Lars G. Nilson, is of the four-cycle type, and has six 8 x 10 inch cylinders. To secure a short crank shaft and minimize vibration the cylinders, as shown in Fig. 3, are partially opposed, three on each side, and the sets are at an angle of 90 degrees with each other. This construction also has the advantage of making the parts readily accessible. The bearings and wearing surfaces in general are much larger than customary, but the weight of the entire engine is reduced by using aluminum for covering parts where there is no strain. The engine frame is of cast steel and is securely bolted to a rectangular base of the same material. The vaporizer is arranged to work economically at all loads. Kerosene, alcohol or crude oil may be used instead of gasoline with a slight change of adjustment of the vaporizer. The ignition is by jump spark, coils of special design being used, one for each cylinder, and all operating from one interrupter. The commutator is driven from the end of the cam shaft and is outside the casing at the rear of the engine. Lubricating oil is contained in a reservoir beside the engine and is pumped to the different bearings, finally returning to a filter over the reservoir. A centrifugal pump belted to the fly wheel draws water from a tank in the vestibule at the center of the car and forces it through the cylinder jackets and to radiating pipes upon the roof. In cold weather the passenger compartment is heated by passing this water through interior radiators. The gasoline is

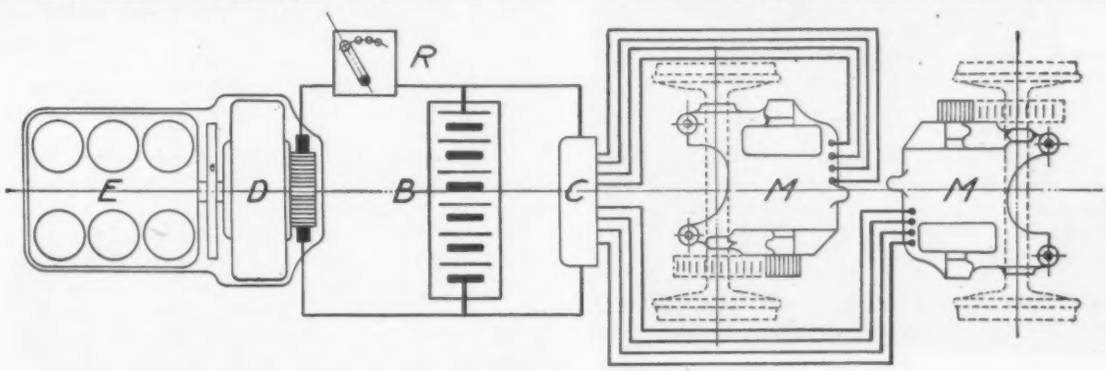


Fig. 2.—Diagram Plan of the Strang Power System.

stored in a tank underneath the car floor, and is pumped to an overflow cup at the side of the vaporizer and the excess is returned by another pipe to the tank. The cells of the storage battery are placed on a cradle underneath the center of the car. By using a voltage of 250 instead of 500 the number of cells is reduced and more reliable insulation is secured.

The electrical equipment consists of a 50-kw. 250-volt direct current generator, running at 400 revolutions per minute, directly coupled to the gasoline engine; two 50 horse-power series wound motors of regular street rail-

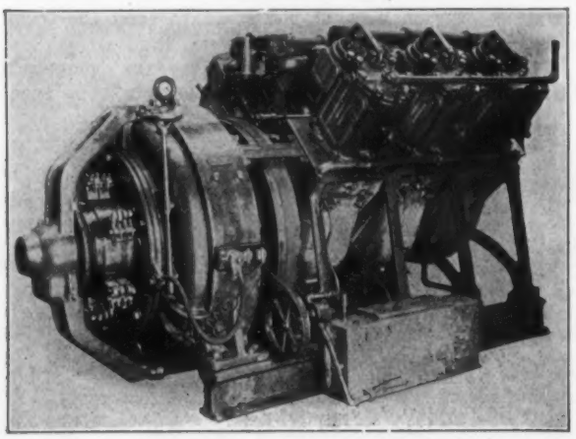


Fig. 3.—The Six-Cylinder Gasoline Engine and Direct Connected Generator.

road type, two controllers, and a storage battery of 112 cells having 200 ampere hours capacity. By the series parallel system of control effective speed changing and reversing is secured without additional gears, clutches or other mechanical appliances, and with the battery the full benefit of flexibility, reliability and economy is gained in this combination. The battery is of comparatively small size, as it is rarely called upon to furnish current for more than a few minutes at a time. Ordinary use improves and is necessary to keep a battery in good condition and it is entirely practical to build a battery of small capacity with long life.

The electric transmission being elastic, there is al-

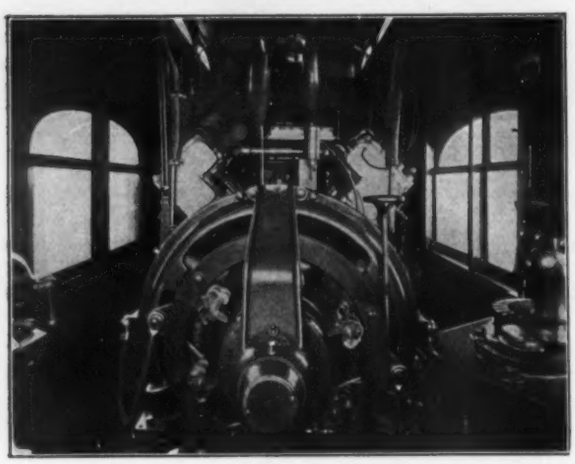


Fig. 4.—The Engine Room as Seen through the Front Window.

ways a tendency to adjust the speed of the car to that which is most suitable and economical for the primary power equipment. The engine is provided with automatic governing devices dependent entirely upon the condition of the batteries and the consumption of current. This arrangement has nothing to do with the speed of the engine or the motors, but is simply a safeguard against overcharging the batteries and is entirely automatic and solely for the purpose of economizing fuel and saving the battery when the car is running light or standing still.

The switchboard is placed against the left side of the engine compartment within easy reach of the operator, as may be seen in Fig 4. It includes voltmeter, ammeter, starting rheostat and spark control. The platform at the rear of the car is equipped with a controller and a combination volt and ammeter.

The maximum speed of the car which can be maintained is 50 miles per hour. The average gasoline consumption is 0.45 gallon per car mile. One hundred gallons of gasoline are carried, which gives a mileage radius of 225 miles.

The Case Electric Traveling Jib Crane.

In shops where it is impossible to operate an overhead traveling crane, on account of the construction of the building or a congested system of shafts and belts, a satisfactory alternative may be had in the electric traveling jib crane built by the Case Mfg. Company, Columbus, Ohio, with New York office at 85 Liberty street. In many cases the crane will be found useful in unloading or loading trucks or cars outside the building, as the jib may be run any distance outside by providing a door and extending the runway. A crane of this type operating in a bay or a gallery may be made to extend into the main building and serve other cranes, thus increasing their efficiency and making every part of the shop readily accessible.

It will be seen from Fig. 1 that the area covered is limited only by the radius of the jib and the length of the runway, as such obstructions as belting, shafting or tall machine tools, which would interfere with a traveling crane, are easily avoided by a crane of this type. A path 30 inches wide is sufficient to permit the crane to travel through the shop with the jib parallel to the truck. The crane requires but a single lower runway rail and is of sufficient weight and wheel base to need no support when the jib is operating parallel to the rail. When the jib is swung at right angles to the runway, the upper reaction is taken by a carriage with four wheels, two of which bear on either side of a central I beam forming the upper runway, its flanges being placed vertically.

The mast is made of two I beams and a central forged steel column of large diameter. This column is provided with roller bearings at the top and near the bottom, the bearings themselves being secured to the I beams. On the under side of the bottom bearing is a ball race which supports the framing and the load suspended from the hook. This system of ball and roller bearings, with low bearing pressure per square inch, greatly reduces the effort required to swing the jib. In fact the jib swings so freely that it was found desirable to provide a brake to hold it still when required. The brake, which may be seen in Fig. 2, has cast iron shoes lined with babbitt, encircling the central mast column, and is actuated by a hand wheel keyed to a square threaded screw. The center column terminates in a large casting into which it is forced under hydraulic pressure, the casting being in turn carried by the lower carriage or truck.

The hoisting mechanism, as shown in Fig. 2, is located on the mast and comprises a motor with an electromagnetic brake for stopping the motor when the current is cut off, and a mechanical load brake to prevent the load from descending faster than the motor runs when operating in the lowering direction. This makes it impossible for the load to drive the motor and allows the operator to control the speed of lowering. Either of the two brakes is alone capable of supporting the load. A limit switch avoids the possibility of overtravel of the hook as a consequence of careless handling.

The trolley which carries the sheaves over which the hoisting rope passes and from which the bottom block is suspended, is provided with the necessary mechanism for racking the load back and forth along the jib. It is not necessary to equip the trolley with an electric motor for racking, as this movement is not required frequently. The travel of the crane on the rail and the swinging of the jib accomplish the same result.

The traversing mechanism is located on the bottom truck, power being transmitted from the motor to the nearest truck wheel through a system of spur gears, and to the farthest truck wheel through miter gears and a shaft extending along the truck. These miter gears are

inclosed in oil-tight gear cases. The truck wheels have chilled treads, accurately ground, and are provided with bearings of the Master Car Builders' type. The upper halves of these bearings are of bronze, and carry the weight of the crane, the lower halves contain chambers for waste and grease to afford constant and ample lubrication of the journals. This style of bearing is simple, and the wheels may be easily removed without jacking up the crane, by simply relieving the wheels of the superimposed weight, when they may be rolled out with their bearings by taking off the retaining caps. A pilot is placed at each end of the trucks to deflect any obstruction that might have been carelessly left upon the runway rail. The controllers for operating the hoist and propelling motors are placed on the truck. The current is taken from overhead line wires by collector rings attached at the top of the mast. All gears and sheaves are machined and all the bearings are large with low pressure per unit of area to insure easy running, good lubrication and durability.

The company is prepared to furnish this type of crane equipped with either direct or alternating current motors and in capacities from one ton up to any that may be desired. The one illustrated has a capacity of five tons.

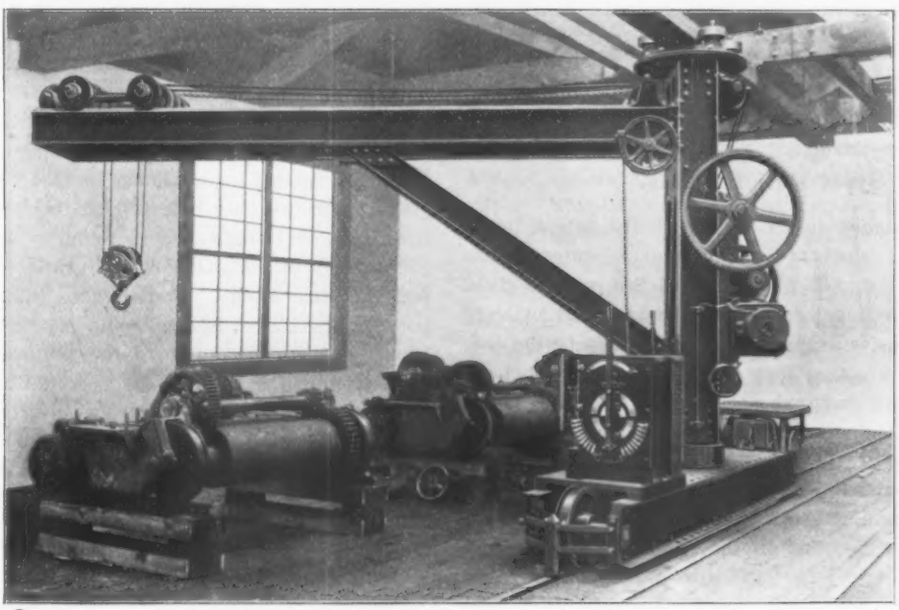


Fig. 1.—A 5-Ton Traveling Jib Crane, Built by the Case Mfg. Company, Columbus, Ohio.

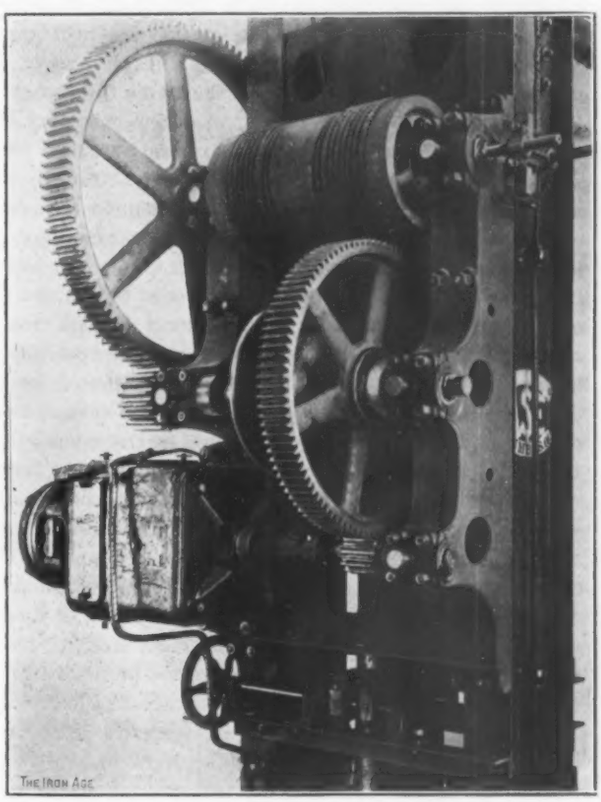


Fig. 2.—A Detail of the Hoisting Mechanism.

An Enormous Economizer Installation.—In the new power house of the Interborough Rapid Transit Company, New York City, the 26,000 horse-power of boilers now installed are soon to be equipped with economizers built by the B. F. Sturtevant Company, Boston, Mass. The 28 economizers will contain 7840 pipes, having an aggregate length of nearly 15 miles. They will increase the heating surface of the plant about 25 per cent. and store 265 tons of hot water or 18 per cent. of the volumetric capacity of the boilers. It is estimated that the saving due to the utilization of heat in the waste gases will average more than 10 per cent. for the whole 24 hours. This figure will be greatly exceeded while the load is at a maximum, at which time the heat will be utilized which was previously stored while the fires were banked. The remarkable efficiency is due largely to the staggered arrangement of the economizer pipes peculiar to the Sturtevant type, which breaks up the currents of hot gases and causes them to deliver the maximum amount of heat to the water.

A description is given in *La Locomotion Automobile* of the Posno system of brazing aluminum, by which it is claimed a joint is obtained equal in tensile strength to the original metal before rupture. Even small and delicate pieces can be repaired by this process, which merely involves the use of a gas or spirit blow pipe for large objects or of an ordinary soldering lamp for smaller ones. All that is necessary is to clean the parts carefully beforehand, to form a beveled chase or V-cut and to bring the pieces firmly together, then to fill up the voids by a bar of special brazing composition supplied for the purpose, and by this means also to stop up holes and cracks. As soon as the brazing substance has melted, which indicates that the proper temperature is reached, it is advisable to use a soldering bit (preferably one of copper) to work it well into the joint. Care must be taken throughout the whole of these operations to keep up the heat and to avoid the effect of cold currents of air until the brazed joint cools down. This new process is said to remove all difficulties hitherto encountered in brazing aluminum.

THE IRON AGE

1855—1906.

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Steel Rail Exports.

It was presumed to be a part of the international arrangement of steel rail manufacturers entered into last year that the mills in the United States were given the American continent (excepting Canada) and adjacent islands as exclusive export territory. If this be the case the indications are that they were well compensated for the surrender of any export opportunities they might have in the more distant countries. The South American trade has been greater than has been generally appreciated and, from what has come to the attention of domestic rail manufacturers, plans already on foot for further railroad building in the countries to the south of us will result in large orders in the next few years. Argentina, Chile and Brazil are in the midst of a campaign of development that has large promise for the future of all three. Railroad building must precede the conversion of splendid resources—agricultural, timber and mineral—into an active production of wealth on a scale only suggested by the industrial operations thus far carried on. Capital from the United States has been going into South America and much more is to follow.

It will be of interest in this connection to note the destination of the steel rails exported from the United Sates in the past three years, particularly in view of what is suggested as to the future scale of operations of the rail manufacturers of the United States in the outside fields which are naturally theirs:

Exports of Steel Rails from the United States, 1903-1905.

	1903. Tons.	1904. Tons.	1905. Tons.
Europe	1,070	17,581	17,625
British America	21,249	216,805	24,450
Central American States and British Honduras	1,229	7,836	12,186
Mexico	2,154	23,871	55,682
West Indies and Bermuda	1,376	15,557	31,168
South America	778	28,347	124,632
Japan	1,000	28,992	10,515
Other Asia and Oceania	1,800	72,746	15,081
British Africa	....	1,355	3,684
All other Africa	....	1,755	....
Totals	30,656	414,845	295,023

The exports of 1903 are really negligible, since they are more than three times offset by imports amounting to 96,039 tons, while the home production made a new record at 2,946,756 tons. But it is to be noted how large a percentage of the rail exports of these three years went to countries in the Western Hemisphere—87 per cent. in 1903, 70 per cent. in 1904 and 84 per cent. in 1905. The exports to British North America in 1904 rose to 216,805 tons, due to the large deliveries of rails to Canada in anticipation of the duty that became effective November 1 for the protection of Canadian rail mills. The significant factor in the table is 124,632 tons, representing the exports to South America in 1905. Mexico, the West Indies and even the Central American States made noteworthy demands upon our rail mills last year, and the export total is a remarkable one when the large home consumption is considered. The exports of 295,023 tons are considerably in excess of the average rail exports of the ten years preceding 1904—157,362 tons—on which the percentage of export rails allotted to the United States in the international rail agreement is said to have been based.

Central America has only made a beginning in railroad construction and Mexico has prospective requirements in rails, with which her single rail mill thus far gives little promise of coping. But South America seems on the eve of a development that will mean much, saying nothing of the proposal for an all rail route from the United States to the farthermost countries on the south, which the Government at Washington investigated through a special commissioner in 1904. It will be many years before an iron industry can be built up in South America, even though the ores found in some parts of the country can be supplemented by available coal, which is not the case to-day. Under these conditions the iron trade of the United States should find for all lines of finished products an outlet to the south which with the completion of the Panama Canal would become no inconsiderable factor in this country's outer trade.

The Hackneyed Complaint of Bad Packing.

Much has been said about the doubtful value of some of the literature published at Washington in the form of consular reports. The admonitions to manufacturers, while given with every evidence of good intention and of zeal for the extension of the foreign trade of the United States, have a well remembered sameness about them. The home manufacturer is advised to study the wants of the people of the country to which he would sell his goods—a suggestion that might have occurred many times to the manufacturer himself. He is also told that representations must be lived up to, that he must not expect to advance prices on his foreign customers in the way that he feels free to do at home when his labor and material costs go up. But whatever caution the Consul omits, or complaint of American methods as he has observed them, he never fails to say that the most serious fault of American exporters is the bad packing of the goods they send abroad. So staple has the packing feature of consular trade comments become that one might almost conclude that departmental instructions to our representatives abroad include the injunction never to omit it.

However, perfunctory as the reference to the shortcomings of American packing may have become, with necessity pressing the consular reporter to contribute his quota to the "hints to manufacturers," there is good evidence that the need for agitation on the subject has not passed away. Men of experience in the machinery trade, for example, find that the advice that has been repeated for years has not yet reached completely around the circle. While many manufacturers have been exporting for years and have passed the stage of making elementary discoveries through costly mistakes, constant additions are being made to the ranks of those who are reaching out for trade overseas and to such the experience of others ought to become profitable. At a convention of machine tool manufacturers in New York City a few months ago a representative of an important firm of machinery manufacturers and jobbers laid stress on the necessity for better attention to the preparation of goods for shipment abroad. Having been at foreign receiving ports when American machinery was unpacked, he had been humiliated by the damage done in transit to many of these shipments because proper care had not been taken in the shipping departments of the consignors. At the Paris Exposition he had seen the unpacking of finely finished machinery

intended for American exhibits, much of it with broken parts due to the fact that those who packed it had not appreciated the strain to which it would be subjected in transit to foreign markets. English and German machinery, by contrast, came in excellent condition.

Recently the Department of Commerce and Labor has been presenting cumulative testimony on the subject of bad packing, which, it says, "cannot fail to convince American manufacturers and exporters of their deficiencies in this particular, as well as impress the general reader with the correctness and the forcefulness of charges that have been so frequently made and reiterated by our consuls and agents relative to American methods in dealing in foreign markets." Special Agent Crist, writing from Tientsin, the commercial depot of North China, says that while English and German exporters will use one-inch stuff, if that thickness is required to insure safe delivery, many American shippers select a three-quarters or seven-eighths thickness. He details illustrations of bad practice in the preparation of American goods that have come under his observation and makes use of photographs to show in just how bad condition American bales and cases were delivered. His criticisms reinforce those published some weeks ago coming from the managers of transcontinental steamship companies and of the steamship lines operating between the United States and the Orient, who were emphatic in saying that the principal complaint against American goods in the Orient is due to the fact that too little care is taken in preparing them for export.

Thus vindicated, the consular writer on the delinquencies of American shippers may take courage for fresh campaigns. It is quite time, though, for our manufacturers to see to it that the writer on their weaknesses as exporters is driven to other literary occupation. Exporting is no longer on the list of infant industries.

Per Capita Consumption of Iron in 1905.

It has been customary to compute the apparent pig iron consumption of the United States year by year by adding to the domestic production the importations, deducting exports and adding the decrease or substracting the increase in the twelvemonth, of pig iron stocks in blast furnace yards. Since unsold stocks of pig iron at blast furnace yards are no longer collected by the American Iron and Steel Association this factor cannot be taken account of, but using the production, imports and exports for 1905 the calculation is as follows:

	Tons.
Domestic production	22,992,380
Imported	212,465
Total	23,204,845
Exported	49,221
Apparent home consumption	23,155,624

Stocks of pig iron in the hands of producers on December 31, 1904, as reported by the American Iron and Steel Association, were 446,442 tons. While there was some decrease in stocks in the first five months of last year, an increase followed in the summer months, and then toward the end of the year again came a decrease. The net result was a decline in stocks for the year, but the amount was not ascertained and it therefore cannot figure in any statistics of consumption, except by way of emphasis.

A computation of the per capita consumption of pig iron in 1905, based on the figures given above and estimating the population of the United States at 84,000,000, gives 617 pounds. This compares with the five preceding years, as follows, the figures for consumption in gross tons for the years before 1905 being those of the American Iron and Steel Association.

	Apparent consumption in gross tons.	Consumption per capita in pounds.
1900	13,177,409	387
1901	16,232,446	464
1902	18,436,870	514
1903	18,039,909	500
1904	16,679,555	455
1905	23,155,624	617

Of course deduction should be made for the pig iron equivalent of finished iron and steel products shipped abroad and an addition should be made for similar imports. The imports are relatively small, but the exports computed in pig iron have amounted to an average of well over 1,000,000 tons a year for several years, apart from the sharp falling off in 1902 and 1903. Deductions for exports, however, are not sufficient to change the important fact of a very large increase in per capita consumption of iron and steel. The amazing figure for 1905 compares with 84 pounds per capita in 1856 when Abram S. Hewitt made his famous prediction concerning the growth in the use of iron, both in the United States and in the world.

Economy of Modern Machine Shop Methods.

The present season of prosperity is affording a striking test of the reorganization of American machine shops and their management, which had its beginning with the acceptance of the high speed steels as being commercially practicable. The true criterion is, of course, cost of production, and it is amply demonstrated in many instances that costs have been very materially cut in the new order of things, excepting in the matter of materials, which may be omitted in the consideration of the question as a factor governed by other influences. To illustrate the changes which have come about in the past five years two instances may be cited. A large manufacturer of machine tools had 300 men on his machine shop payroll at the time of the last high tide of prosperity. With the same number of men to-day the production is 50 per cent. greater. In another large works, where wood working machinery is built, the machine shop production to-day with 272 men is very much greater than it was during the last period of maximum production, when 305 men were employed. This change in conditions means much more than the saving in the great item of labor cost. It means a wider distribution of the cost, commonly known as general expense, or burden, which is the combined expense outside of labor and materials. And at the present time it means that in many instances better methods and equipment are taking the place of skilled workmen, which could not be procured were their services required. In other words, if these great changes had not been effected, and if it were necessary to employ the same number of workmen to produce the present output as would have been required five years ago, the labor market would be even tighter than it is to-day, and the crippling of works by the lack of skilled men would be very much more serious, which is saying a great deal.

The new steels deserve the credit for the great changes above any other one element—probably above all other elements combined—not only because of the greater production which they have made possible with machine tools in which they are employed, but also because of the stimulus which they have given to the whole general investigation into shop methods. The saving in one cost is an incentive to saving in others. Comparison tests showed that the old tool steels have greater capacity than had generally been recognized, and their operation became more rapid in classes of work to which the new

steels are not adapted. Shafting was speeded up. Castings which formerly were laid aside as unworkable because of their hardness yielded readily to the new steels and produced superior finished parts. The awakened manufacturer went farther into costs and learned that a comprehensive system was the most economical because it was the only accurate one. He began to look for leaks, for wastes. With the need of greater power which the steels required the power plant came in for consideration as to efficiency and economy. The drafting room became recognized as a practical assistance in determining shop questions as to speeds and feeds and the like. The search for the economical has gone on. Most important of all, it has become recognized that to effect the maximum of economy modern machine equipment is necessary, and this has been an important element in the success of one of the companies whose experience has here been cited, for it has installed $75,000 worth of new machine tools within two years and is satisfied that the investment is an exceedingly wise and fruitful one. It is quite common to learn of cost of work being cut in four by the use of some one of the most modern tools, especially since the machine designers have reached the limits of the new steels. And on top of this decrease in cost the quality has been improved rather than injured, largely due to grinding machinery and more special tools which can finish what the heavy reduction machines have prepared in the rough. Of course special machinery generally has developed in the past five or six years with astonishing rapidity, entering largely in certain classes of machine work, and being an important factor in most machine shops.

A good cost system tells the story of the great change which has come over machine shop practice. The decrease in the cost of labor is marked enough, but is hardly more so than the burden cost, which is generally reckoned on the basis of labor cost. If the labor cost of a given part, say a pulley, has been cut in two, at the same time its burden cost—its share of the general expense of the business apart from productive labor and material—has been cut correspondingly. The argument may be better understood by taking a given floor space and replacing a machine which occupied it with one which produces twice as much work of the same class. Some of the more conservative of manufacturers who employ machine tools have not progressed in this modern trend of manufacturing so rapidly as have some others, but many of them are now realizing that the time of experiment has ended and that the modern system is the cheapest and best. They will have the benefit of others' experience and will profit thereby. Such men will be good customers during the next year or two; in fact, many of them are already replacing their old tools with new and are adopting the high speed steels as rapidly as their equipment will permit.

English engineering journals have commented recently on the fact that the London Underground Electric Railways Company, Limited, had bought the greater part of its steel car equipment in the United States. It is noted, however, that the last order of the company, which was for 40 steel cars, was awarded to an English company, the Brush Electrical Engineering Company, Limited. The London *Times Engineering Supplement* says that steel is now becoming recognized as the most suitable material for underground cars, the only question remaining being how far it will be adopted for service on main and suburban surface lines. The new cars for the Underground Electric Railways Company show an appreciable saving in weight. It is stated that the British construction of steel cars for such service is lighter than that of American builders, without any apparent sacrifice of strength.

CORRESPONDENCE.

The Way to Prevent Strikes and Do Away with Trouble Makers.

To the Editor: Contrary to the advice of labor organizations I would advise a piecework system in almost all businesses, though I know at first thought the idea would be howled down by most working people. Yet, after careful consideration, if employer and employed will get together piecework will be adopted.

First, however, make an eight hour day with eight hour pay. It is an equal division of time: eight hours to work, eight to play and eight to sleep.

Next let the employer engage a competent manager at a living salary and a bonus or commission on profits. In turn the manager should employ men or women at the regular run of wages for the character of work done, become familiar with the shop and give different classes of work to those best suited to do it. He should find out the exact amount a workman can turn out for an honest day's work, then figure on the cost, working daily. After ascertaining the exact cost he should put a piecework price on the job, register it in a special book, day and date and never cut the price.

If employers should adopt this rule they will never have any labor troubles; all hands will be happy with no kick coming. Laborers and mechanics will make from 25 to 100 per cent. more daily than they ever anticipated and their employers more in proportion.

The great trouble with the piecework system heretofore has been stupidity and greediness on the part of employers; also jealousy on the part of the foreman because some workman makes more than he does. The foreman goes to the manager and says, "Jones is getting 10 cents apiece for a certain job and makes $6 a day." He suggests cutting to 7 cents and the helpless workman is cut accordingly, and the cutting continues until the man has to do two, three or four times as much for a day's work and earns no more than he formerly did when working by the day. Such is the piecework system used at present by most firms.

The writer employs men on the no cut basis and all hands are happy, the piece workers making $4.50 to $6.50 per day. Only a small portion of labor is unwilling to adopt piecework methods and the eight hour day if the employer does not curtail the output or reduce the original price agreed upon; and all will work more easily and produce more than was ever turned out before. Consequently miners would hustle the raw materials, mechanics would rush out their part, and the entire work would speed along the line until there would be such a demand for labor that men would all earn what they are worth. Capital would not be afraid to invest, as at present is the case, for if piecework were the rule there would be no labor agitators nor trouble makers.

S. S. DEEMER.

NEW CASTLE, DEL., February 12, 1906.

Strength and Softness in the Same Casting.

To the Editor: After reading the interesting paper on "Foundry Practice" by William A. Bole, printed in *The Iron Age* of February 15, I am prompted to make a few comments thereon. Regarding the composition of castings Mr. Bole says: "In general it is probably safe to say that cast iron does not permit of softness and strength in the same iron; that softness in cast iron is always accompanied by weakness, and that strength in cast iron is always accompanied by hardness unless the iron should be so hard as to be chilled in thin sections, and then it becomes brittle and weak from its chilled state."

While this statement (qualified by the words "in general") is perfectly correct it is, I think, apt to be misleading, for it is possible to have strength and softness combined in cast iron in a manner not generally known and to a degree that would seem almost incredible to the uninitiated.

It is unfortunate that in the analytical table "submitted as a statement of opinion of the relation which should exist between the thickness of metal in the body

of a casting and the chemical composition of the iron out of which it should be poured," no account is taken of the total carbon, or—what is still more important—the relative proportion of graphitic carbon and combined carbon. The true function of silicon is not to act as a softener *per se*, but to determine the relative proportion in the casting of these two conditions of the element carbon, upon which relation the hardness or softness depends, especially in castings of relatively thin section.

In the absence of information regarding the graphitic and combined carbon in the table of analyses referred to we cannot predicate the tensile strength of the metal accurately, but I think it may be safely assumed at not much over 20,000 pounds per square inch for the compositions comprised in the first half of the table, viz.:

Thickness. Inch.	Silicon. Per cent.	Phosphorus. Per cent.	Manganese. Per cent.	Sulphur. Per cent.
¼	3.25	1.00	0.40	0.025
½	2.75	0.80	0.40	0.040
¾	2.50	0.75	0.50	0.050
1	2.00	0.70	0.60	0.060

A little over two years ago an unusual metallurgical problem presented itself at the establishment of Wm. Sellers & Co., Incorporated, demanding special treatment. Some small hollow castings were required for experimental purposes, about 18 inches long and ½ inch thick, to withstand bursting strains under high steam pressure. The peculiar requirements were that the metal must be fine grained, perfectly gray, absolutely soft, *i.e.*, free from hard spots or "chill," and to be to a certain degree malleable. Four test bars, 15 inches long, of the same section as the castings, molded on either side of each casting and attached thereto, were required to show tensile strength, when turned to a diameter of about .35 inch between threaded ends for the grips of the testing machine, of not less than 30,000 pounds per square inch. The castings and test bars were not to be annealed or otherwise treated after leaving the sand. This proposal, I believe, was submitted to several other manufacturers, who considered the conditions impracticable. A number of the castings were made by the firm mentioned, all of which fulfilled the requirements, the tensile records largely exceeding the minimum.

Shortly afterwards the New England Foundrymen's Association requested that I address them on the subject of "Cast Iron," and I forwarded to the president in advance of the meeting two of the rough test bars mentioned for his examination. He sent these bars to the Souther Engineering Company, Hartford, Conn., to be turned, pulled and to have complete analyses made for a report to the association. The following is a copy of these records, subsequently furnished to me:

Analyses of Two Test Bars.

Sample	13,075	13,077
Mark	No. 1 bar. Per cent.	No. 2 bar. Per cent.
Total carbon	3.096	3.108
Combined carbon	0.594	0.784
Graphitic carbon	2.502	2.326
Phosphorus	0.584	0.547
Manganese	0.56	0.380
Sulphur	0.069	0.063
Silicon	1.996	1.740

The Souther Engineering Company's report of tensile tests states that two tests were made from each bar. In the first test of No. 1 bar it broke in the thread. The second test of the same bar showed 35,160 pounds per square inch. The tests of bar No. 2 gave tensile strength 36,382.5 pounds and 36,711.5 pounds per square inch. Mr. Souther stated at the meeting that the bars were fine grained and quite soft. Six test bars attached to the special castings, made from six different heats, were turned and pulled on the 100,000-pound Emery hydraulic testing machine of Wm. Sellers & Co., Incorporated, which is provided with automatic centering grips, insuring a straight pull, which is so essential in testing cast iron. The following is a copy of their records:

	Pounds per square inch.
No. 1	41,842
No. 2	40,533
No. 3	42,363
No. 4	43,260
No. 5	44,210
No. 6	44,565

The castings and test bars were all quite soft. I am sending a piece of one of these test bars for your examination, to show the grain, softness under the file, etc.

ALEX. E. OUTERBRIDGE, JR.

Philadelphia, Pa., Feb. 15, 1906.

The Tennessee Coal, Iron & Railroad Company's Finances.

The financial condition of the Tennessee Coal, Iron & Railroad Company is shown in a statement issued in connection with the listing of $600,000 additional bonds on the New York Stock Exchange. From this statement the necessary figures have been taken to make up the following comparative statement for the years ending December 31, 1905, and 1904:

	1905.	1904.	Increase.
Net earnings	$2,023,128	$1,562,797	$460,331
Interest on bonds and dividends on guaranteed stocks	771,716	761,583	10,133
Balance	$1,251,412	$801,214	$450,198
Depreciation, &c.	176,410	256,225	*79,815
Balance	$1,075,002	$544,989	$530,013
Sinking fund	48,240	48,730	*490
Surplus	$1,026,762	$496,259	$530,503
Dividends	920,380	19,006	901,374
Surplus	$106,382	$477,253	*$370,871
Sinking fund for 1903	.....	89,080	*89,080
Surplus	$106,382	$388,173	*$281,791
Previous surplus	2,122,335	1,734,162	388,173
Balance surplus	$2,228,717	$2,122,335	$106,382

* Decrease.

It will be observed that the past year the company paid $901,374 more in dividends than in 1904, and besides added $106,382 to its surplus.

The general balance sheet shows:

Assets.

	1905.	1904.	Increase.
Property account	$37,439,974	$36,122,436	$1,317,538
Investments	289,833	297,306	*7,473
Bond sinking fund	38,460	54,104	*15,644
Treasury securities	1,040,000	1,995,000	*955,000
Cash	574,189	463,108	111,081
Bills and accounts receivable	1,473,655	1,151,278	322,377
Inventory	1,486,187	1,442,790	43,397
Totals	$42,342,299	$41,526,022	$816,277

Liabilities.

Common stock	$22,553,060	$22,552,800	$260
Preferred stock	248,300	248,300	.....
Bonded debt	14,716,000	13,693,000	1,023,000
Guaranteed securities	440,000	1,540,000	*1,100,000
Reserve funds	161,129	256,056	*94,927
Depreciation funds	226,227	.....	226,227
Sinking fund bonds	48,240	48,730	*490
Current liabilities	1,720,626	1,064,800	655,826
Surplus	2,228,717	2,122,335	106,382
Totals	$42,342,299	$41,526,022	$816,277

* Decrease.

The $600,000 of bonds for which application is made have been sold and the proceeds paid into the treasury of the company to reimburse it for cash paid out of earnings for permanent additions and improvements.

The Abner Doble Company, San Francisco, has recently taken a contract for a Doble tangential water wheel which will have a capacity of 13,000 horse-power, thus surpassing in power any tangential wheel now built or contracted for. It has been ordered by the California Gas & Electric Corporation, for installation in its noted Colgate plant. It will be of the double wheel two bearing type of construction and when first installed will operate under an effective head of 660 feet, delivering 8500 horse-power. It is planned eventually to increase the pressure on one of the wheels by delivering the water through a new pipe line under an effective head of 1050 feet. This will bring the output of the unit up to 13,000 horse-power. It will operate at a speed of 300 revolutions per minute and will drive a 5500-kw. Westinghouse generator.

Steel Barges on the Ohio and Mississippi Rivers.*

BY RICHARD J. DONOVAN.

We may divide the business of river transportation into two general classes—first, that which pertains to bulk quantities, including such staple articles as coal, steel, grain, &c.; second, that which pertains to package quantities, including the general run of merchandise which may come in some form of package or in quantities which will not warrant special shipment. We find that in the case of the first class, or bulk quantities, the problem consists in simply loading the article considered in some type of carrier and delivering at some destined river port, without breaking or shifting individual cargoes. With the second class, package freight, there is more or less shifting or breaking cargo, with additions or subtractions at various points.

Of course the handling of bulk quantities is by far the more interesting problem to the engineer, and it is here that the observer is astonished at the magnitude of such individual movements on our rivers. The total navigable mileage of the Ohio and all its tributaries is about 4400 miles, the Ohio itself being about 1000 miles from Pittsburgh to Cairo, where it empties into the Mississippi.

The gross freight movement on this vast waterway system amounts to about 11,000,000 tons per year, the coal from our Pittsburgh district constituting about half of this tonnage. In handling this enormous business there are employed about 480 steamboats of all descriptions and some 6000 or 7000 barges. I might add that one company here in Pittsburgh, the Monongahela River Consolidated Coal & Coke Company, owns upward of 100 tow boats of all descriptions, together with 3000 barges, and ships annually about 4,000,000 tons of coal.

The various types of carriers used on this great system may be divided into two classes—first, those provided with their own propelling machinery, such as the stern and side wheel steamboats; second, all carriers that have to be towed or moved by external means, such as the coal barge or decked merchandise barge. We would here note that a large number of craft are used in maintaining traffic, such as dredges, snag boats, derrick boats, repair and pump boats, &c. The two general classes are the result of many years' experience and hard thought on the part of those engaged in the river business, and I may add that the types adopted are peculiarly fitted for the service.

Construction of River Carriers.

The final result in any design for a carrier on any waterway system is a compromise between adaptability for certain speed, draft of water available and carrying capacity required, there being of course many other details peculiar to the service conditions. The requirements for a river steamboat, then, may be briefly stated to be (taking first the case of the packet steamer) such speed as has been found economical for the service engaged in, the least possible load draft, and such freight and passenger capacity as the usual run of business would warrant. In the case of the tow boat large reserve propelling power is an important item, and, due to the fact that coal barges leak more or less, there must be a large excess in boiler capacity for the purpose of operating the steam siphons which are used to keep the tow clear. The under water parts of the tow boat hull are as a rule not so fine as a packet boat—that is, they are not formed for such speed. They are not intended to carry cargo and the accommodations provided are generally but little in excess of those required by the crew. The boats are well supplied with all kinds of appliances and machinery for handling the tows and in the intricate and shallow channels are admirably suited for the purpose intended.

In bulk transportation we have seen that coal is far in the lead as a staple product. The carriers used in this trade are divided by the river men into two classes, known respectively as the barge and the boat, both of which are rectangular in plan and resemble large open boxes. The ends of both are usually curved or raked from the bottom to the head blocks, as the ends which take the bumps and shocks are called. Bulkheads are fitted in some at each end, separating the rake end from the main cargo space. In passing I would state that the barge is mainly used in the Cincinnati and Louisville trade, while the boat is employed almost exclusively in the Mississippi River business. The barge is usually about 135 x 26 x 8 feet, and will carry between 15,000 and 16,000 bushels or nearly 600 tons on a draft of about 6 feet 6 inches. The boat is usually about 170 x 28 x 8 feet 6 inches and will carry about 25,000 bushels or 950 tons. The barge is built in a very substantial manner and will last for some time, but the boat is merely thrown together and can stand but little hard usage. For some kinds of cargoes, such as sand and bulk merchandise, deck barges are used. These are of various dimensions and built to stand the hardest usage.

There is also a very important business on the Mississippi River in the transfer of railroad cars from side to side. These car ferries or transfer boats are generally of large dimensions and are supplied with their own power. There is also in use a number of transfer barges, built in the most substantial manner especially for this business.

Up to the present time wood has held its own in river construction on account of its cheapness, for the wooden structure costs but one-half to one-third as much as the steel structure. However, suitable timber is becoming very costly on account of its scarcity, and the large operators are beginning to investigate the relative advantage of steel for their transport fleets. At present there are several examples in steel of the various types discussed operating on the Ohio River, and experience has shown that the steel hull is far superior to the wooden hull in cost of upkeep, while its life is double that of the wooden.

The Typical Steel River Boat.

We will now examine the construction of a typical steel river steamboat. The general principle involved in the construction of any type of boat is usually embodied in arranging a longitudinal "backbone" consisting of longitudinal bulkheads, keelsons and stringers. At right angles to the backbone is arranged a system of ribs or transverse members, consisting of floors, side frames, deck beams and cross bulkheads. The shell or outside plating is then riveted to the skeleton frame. The bulkheads and shell plating are fitted watertight, this being accomplished by proper spacing of rivets and judicious use of caulking tools. Some very interesting construction is required to insure water tightness, but as a rule in shallow draft river crafts the water pressure is so low that it is not at all difficult to solve the problem. A complete or partial steel deck is usually provided and on this steel foundation the wooden cabin and upper works are built.

There is also usually provided a "hog chain system" to insure longitudinal strength. This is a truss arrangement consisting of a square or round section rod carried over tube or timber bracing and leading from the bow of the boat to the stern. It usually projects above the cabins and is quite apparent. The aim is to make the structure as light as possible consistent with the required stiffness and strength for the service conditions.

It is perfectly feasible to make an analytical study of the structure of a boat, but in river work such an investigation, using the sizes and sections fitted in the best work of this kind, would show a most amazing confidence in steel and would probably deter the exact scientific engineer from competing in this line of work. The tow boat hulls are made much stronger than the packet boat hulls, since they have to stand much harder usage in every way, besides carrying much heavier machinery.

Now let us consider a steel open boat or barge for the transportation of coal. The same principle is carried out here as in the case of the steamboat hull—viz.: the "backbone" and "rib" construction. But here we have to depend more on the sides of the boat or barge acting as the backbone or longitudinal girders, for the interior or hold space must be available for cargo. The ends are usually curved up to heavy end construction known as

* From a paper read before the Engineers' Society of Western Pennsylvania, Pittsburgh, Pa.

the head block, which takes the bumping and blows incidental to the rough service. This curved part is called the rake by river men and is introduced to ease the passage of the boat through the water. At the foot of the rake at each end a watertight cross bulkhead is usually fitted for safety purposes. The framing of the rake must be of a very substantial character, as it is here that the barge suffers most. The cross frames or ribs are spaced about 2 feet apart in the cargo space and at certain intervals there are beams fitted across the barge to stiffen the sides. The barge is merely a shell and of course some judgment must be used in unloading or loading the cargo in order to place no undue stress on the structure.

A type of steel coal barge of which a number have been built and are now in use has the steel plating all about ¼ inch in thickness, and the cross framing or ribs consists of channels and angles fitted alternately, except the side frames, which are angles. A steel watertight bulkhead is fitted at each end of the cargo space and a steel handling deck is arranged from top end of bulkhead to head block. A heavy channel is fitted at the top of the side plating for lateral stiffness, and strong beams are fitted across the open cargo space at the quarter block or hawser posts. As the clamshell or unloading bucket is used in taking out the coal a wood flooring or ceiling is laid on the channel floor beams, thus presenting a smooth surface for the unloader. These barges have given good satisfaction to the owners and are said to hold about 80 tons more coal than the wooden barge of the same dimensions and draft.

In the construction of steel deck barges care must be taken to make the internal framing sufficiently strong to care for the general longitudinal stresses and also for those that are local. The conditions of service met with in dredge hulls are such that usually the local loading and stresses are very high, so that we have to deal not so much with general as with local stiffening; but the general construction of such hulls is identical in principle with that which we have already discussed.

Maintenance of Steel Barges.

In the matter of upkeep the preservation of steel plating and framing from oxidization is of the highest importance, and it is here that a great deal of trouble and expense is incurred. Due to there being so many manufacturing plants established on the banks of the rivers forming the Ohio large quantities of acid matter are drained into the water, giving rise to conditions which are highly injurious to the life of the steel river craft. The use of some good protective paint or covering is imperative, but such a paint is hard to find. There are, however, some such coverings which seem to hold in check this acid to a marked degree.

At present the business of transportation on the Ohio River is a speculation, depending entirely on the stage of water. The Government is working to improve this state of affairs by a series of locks and dams along the whole length of the river. In time it is hoped that an 8 or 9 foot stage of water will be available the whole year, but it is said that this work will cost nearly $100,000,000 and will require about 100 years for completion. In the old days before the Civil War the Mississippi and Ohio rivers were crowded with packets and freighters, and an enormous river business was carried on, but the railroads have now taken over the most of this traffic and the rivers are lined with the decaying remains of this once vast fleet.

In the discussion on the paper Mr. Donovan stated that the only precaution taken thus far for the protection of the inside of steel barges against the action of the sulphur in the coal was to coat the inside with heavy oil. On some barges built for carrying coal a special acid proof paint has been used. The steel barge would have to be dried out or docked at least once a year for examination and painting. L. J. Affelder said that he had found those engaged in river transportation were quite agreed that steel should be used, but all believed the cost was too high. The trouble is that owners are not willing to purchase a standard boat, nor are they willing to buy in sufficiently large quantities to get the price down. As soon as river boats can be standardized, as steel cars are, the river man will be able to buy a boat cheap enough to warrant him in discarding wooden boats altogether. Concerning the objection to the use of steel boats because of the sulphur in the Ohio River, from the pumping of mine water into it, it was stated that even now wooden boats had to be sheathed with sheet iron for use in the winter. This sheet iron had been in use four years in one case, and when it was taken off it was found to be cut through in many places. But this was not from acid. The hull was under water all the time and the sides partly submerged. The trouble from acid was in its eating rivets and caulking out of boilers. It had been found that a steel barge will carry more than a wooden barge requiring the same depth of water, from 75 to 100 tons more, on the testimony of Captain James Moren, who has been in the river coal business for 20 years. Arnold Stucki remarked that the boat builders are now in exactly the same position as the car builders were eight or nine years ago, when they had to compete with the wooden car. At that time every detail had to be made as light as possible, consistent with strength and safety, while now oftentimes a great deal more material is put into the same details, because the purchaser has learned to appreciate the advantages of steel over wood, and is willing to go one step further, knowing that the increased additional cost is more than offset by the increased life, provided the metal is distributed properly.

Anthracite Mining Conferences Begun.

The conference between the scale committee of the United Mine Workers and the representatives of the anthracite coal mining companies began in New York City February 15. Both the coal carrying companies and the independent operators were represented. President Mitchell addressed the meeting giving in general terms the propositions that would be put forward by the miners, saying that these had not been entirely formulated in detail. It was decided that the miners and mine operators should each appoint a committee of seven to represent them in further conferences. No joint meeting of this committee has as yet been held, but the miners' committee has been in almost daily session in New York City in the past week. It is stated that the miners will ask for full recognition of the union, and that company employees in the mines who are paid by the day on a nine-hour basis will insist on the eight-hour work day as do the men working outside the mines. On behalf of the miners an unofficial statement has been given out to the effect that a change in the methods of the Conciliation Board in the adjustment of grievances in the anthracite field will be asked. It is claimed that delays in taking action on complaints often work to the disadvantage of the miners and that this fact discouraged the making of complaints in many instances.

President Wilcox of the Delaware & Hudson Company in a published statement considers that the operations of the Conciliation Board have not worked injustice to the miners. He makes the following summary of the work of the Board up to January 12, 1905: Total grievances presented, 125; cases withdrawn, 42; cases settled by parties, 9; cases sustained, 18; cases partly sustained, 20. The services of the umpire have been required only 14 times and there have been practically no strikes.

Sentiment has been growing in the past week in favor of the view that there will not be a strike. However no tangible development appears as yet to justify an opinion either way.

Pittsburgh advices received Wednesday morning stated that Mr. Mitchell had arrived there for the purpose of holding a conference with Francis L. Robbins, chairman of the Executive Committee, and C. H. Taylor, president of the Pittsburgh Coal Company, and that it was believed that the conference may possibly result in a settlement of some kind through which a strike of the bituminous coal miners may be averted.

Electric Iron Smelting at the Sault.

SAULT STE. MARIE, ONT., February 17, 1906.—Recent newspaper announcement is to the effect that Dr. Heroult, who has been conducting experiments at the Sault for the Canadian Government in making pig iron by the electric current, has succeeded in producing it at a cost of $10 per ton, "which," the dispatches add, "is a saving of $5, the previous costs having been $15 per ton."

If it is true that pig iron has been produced at $10 a ton it is a matter of the gravest importance, not only to the future of the iron trade, but to those localities that are long on potential power and raw materials, but short on carbon fuels. Of these Duluth is the most conspicuous example.

No Cost Figures Given Out.

It is impossible to get any accurate figures as to costs at present. The experiments are conducted in private and until there is a report to the Government, which is represented in the tests by Dr. Haanel, its own superintendent of mines, details as to the amount of energy consumed, the cost per unit, &c., cannot be given. These are essential to any understanding of the situation, and the newspaper reports that have been sent out from the Sault may be set down as incorrect and premature. But that there have been important experimental results cannot be doubted.

Dr. P. L. T. Heroult is the technical director of the French electro-metallurgical society; he is a man of great wealth and the proprietor of the aluminum industry of that country. For years he has been carrying on experiments on the electric reduction of iron ores, for which both his wealth and his previous experience in the production of aluminum eminently fitted him. He has a number of plants now at work in Europe producing high grade steels and is continually making improvements by which economy in production is gradually being brought about. He is thus slowly reaching the point at which pig iron may be made by the electric arc at a price to compete with coke.

So far as the experiments at the Sault are concerned it may be stated to-day, semiofficially, that Dr. Heroult has made considerable advances in the way of further economy, since beginning work there a few months ago, and that both he and Dr. Haanel are enthusiastic as to the future of electric smelting of iron ores, where water can be used to generate cheap electric power. To be sure, Dr. Haanel, at least, does not expect coke furnaces to be driven out, but he does look confidently for the employment of the electric furnace for special purposes and classes of steels and for its gradual extension into the general field of ore reduction. This is practically all that can be said at this time.

Making Ferro-Nickel Pig.

One of the most interesting experiments being carried out at the Sault during these trials is the smelting of roasted pyrrhotite ore (mono-sulphide of iron) directly into a ferro-nickel pig, all the sulphur of the briquettes of pyrrhotite, amounting to 3 per cent., being removed. The treatment of this class of iron sulphides, in distinction from pyrite, has been impossible hitherto. It was in part the costly and unsuccessful attempt to treat pyrrhotites for their sulphur and ferro-nickel, saving the sulphur, that led to the failure of the original Clergue company.

For these Heroult experiments the Dominion Government has assisted to the extent of advancing $15,000, which Dr. Heroult expects to return from the income through the sale of licenses in Canada for the use of his electric process. Mr. Clergue and the Lake Superior Corporation granted power and space in their stations and last October operations on the furnace were begun. These experiments are the direct outcome of the report of the Canadian commission appointed two years ago to investigate the different electro-thermic processes used in Europe for the smelting of iron ores and the making of steels. The commission visited many localities on the Continent, especially in France, Sweden and Italy, where the Heroult, the Kjellin, the Stassano and the Keller processes were in operation and embodied its conclusions in a very technical report published not long ago.

Simplicity of the Furnace Used.

The Heroult furnace, as used here at the Sault, in the big works occupied by the Lake Superior Company's pulp and paper factory, consists of a simple iron box of square cross section, open at the top and lined with dolomitic and other refractory material. The bottom of the casing is provided with a carbon plate, which constitutes one terminal of the electric circuit, the other consisting of a carbon electrode of square cross section placed vertically in the open top of the furnace. There is hand regulation to govern the distance of the electrode within the furnace and the charge to be reduced is placed between the carbon plate at the floor of the furnace and the vertically adjustable electrode and packed around the latter to the walls of the furnace. The electric current passes between the electrode and the carbon bottom through the charge, and its energy is absorbed by the resistance of the latter, which is thereby heated to the reduction point. The operation of this furnace is supposed to be continuous and in theory it should not be shut down for anything except repairs or outside causes. To be sure, in the recent experiments, this has not been altogether the case.

It is stated here that the chemical reactions in the electric smelting furnace, as regards the reduction and the combination of iron with silicon, sulphur, phosphorus and other elements, are similar to those in the blast furnace. By altering the burden, regulating the temperature and varying the current any grade of iron suitable for foundry or steels can be produced at will. It is claimed that the change from one grade to another can be made more easily and quickly than in the blast furnace, which indeed should be the case, as electric furnaces so far erected have been of small capacity and hand regulated.

Among the conclusions that were given by the Canadian commission above referred to was this: "That pig iron can be produced on a commercial scale to compete with the blast furnace only when electric energy is very cheap and fuel very dear." On the basis of the report, with electric energy at $10 per electric horse-power per year, and coke at $7 per ton, the cost of production is approximately the same in the electric and the blast furnace. The modern blast furnace and the various methods of making steels, as at present employed, are the result of a hundred years of experience and have reached their perfection through many modifications, accepted and introduced, in many cases, only after determined opposition and much hesitation. The process of the electrical reduction of iron ore is yet in the experimental state; in fact no plant exists to-day for the reduction of ore by electricity on a commercial scale. "So," adds the report, "the more remarkable it appears and the more gratifying it is regarding the future of electric smelting that experiments made so far, and without due preliminaries, so to speak, in furnaces of experimental design give a figure of costs that would enable the electric furnace to compete with coke in a region where electricity can be had for $10 per electric horse-power year and coke for not less than $7 per ton." D. E. W.

For the Engineering Section of the Birmingham University, Birmingham, Eng., a huge testing machine is being built, designed to test whole members of construction work, such as complete girders, columns, roof principals and every part in the construction of bridges, roofs and machinery. The machine is described as capable of testing any and every part used in engineering work. Its work also embraces the testing of specimens for tension, compression and transversely. The maximum capacity is 300 tons, the total length 70 feet and the weight of the metal in the machine about 85 tons. It is driven by hydraulic power and the adjustment for testing from the largest specimen (30 feet long) down to the smallest is effected by an electric motor working at 750 revolutions per minute.

NEWS OF THE WORKS.

Iron and Steel.

Three new finishing mills are to be erected at the Union Works of the Carnegie Steel Company at Youngstown, Ohio.

The Globe Iron Company, Jackson, Ohio, expects to blow in its Globe furnace about March 25 after relining and repairs. It is expected that deliveries on the Globe Jackson County Silveries will be resumed by April 1.

The Shenango Furnace Company, Pittsburgh, has filed at Duluth, Minn., a mortgage for $4,000,000 in favor of the Union Trust Company, at Pittsburgh. The mortgage covers the ore mines of the concern in the Menominee and Mesaba ranges and also its four blast furnaces at Sharpsville, Pa. It is understood the mortgage is to cover the purchase of the Oliver estate interests in the Shenango Furnace Company, recently taken over by W. P. Snyder and his associates.

The Commonwealth Steel Company, Granite City, Ill., has let contract to the Joliet Bridge & Iron Company, Joliet, Ill., for a steel building, 78 x 125 feet, to be completed April 1. A contract was also placed with the Whiting Foundry Equipment Company, Harvey, Ill., for a 10-ton traveling crane. The new building will be used for additional clearing space to take care of increased output, the present output exceeding by many tons any former record.

Frank G. Kennedy, Jr., secretary and treasurer of the Logan Iron & Steel Company, North American Building, Philadelphia, has sold the Glenwood Furnace to the Commonwealth of Pennsylvania for its forestry department. This sale includes about 30,000 acres of land which now becomes part of the Commonwealth reservation. The company will dispose of the cold blast charcoal iron which it has on hand and dismantle the furnace, which has been in almost continuous operation since 1832, a period of nearly three-quarters of a century.

The Reading Iron Company, Reading, Pa., has purchased the site of the McIlvaine rolling mill with buildings, railroad sidings, &c., for about $24,000. Ultimately the property will be used for additions to the company's extensive tube works. For the present it will be used for storage purposes.

The Baldwin Steel Company, 107 John street, New York, works at Cold Spring-on-Hudson, N. Y., advises us that it intends to build a new plant, but has not yet completed its plans. The company makes high grade crucible tool steel.

General Machinery.

The Pittsburgh Valve & Fittings Company, Pittsburgh, Pa., has not yet prepared plans for its new buildings, which will cover from 60,000 to 70,000 square feet of floor space. The new buildings will be of brick and steel construction and with the exception of a small amount of machinery all contracts for equipment have been closed.

Bertsch & Co., Cambridge City, Ind., have just turned out the largest shears they have yet made. They were for the Lukens Iron & Steel Company, Coatesville, Pa. They weighed 55 tons, had two 10½-foot blades, capable of cutting 1¼-inch iron 18 cuts a minute.

The Owasso Mfg. Company, Perla, Ark., expects to rebuild its plant, which was recently destroyed by fire, this coming summer, but it has not yet decided where the new plant will be built. No purchases of machinery for the new plant have as yet been made and the company will require a 125 horsepower engine 60-inch by 16-foot tubular boiler, together with all the other necessary machinery for equipping an up to date screen factory.

The Houston & Texas Railroad has let contract for the erection of a machine shop, 50 x 51 feet, at Austin, Texas.

Madden & Co., Rushville, Ind., are asking for bids for the erection of an addition to their brick and tile making machinery plant.

The C. O. Bartlett & Snow Company, Cleveland, Ohio, has recently made a large number of sales in various parts of this country and Mexico, including Dudley H. Norris, Zacatecas, Mexico, mining machinery, and Monongahela River Consolidated Coal & Coke Company, Pittsburgh, Pa., coal handling machinery.

The Midland Valley Railroad contemplates the erection of shops at Muskogee, Indian Territory.

The active management of the Smedley Steam Pump Company, Dubuque, Iowa, has been changed so that Mr. Smedley, until now manager of the plant, relinquishes some of his duties and will devote most of his attention to hydraulic and consulting engineering work, especially in water work systems for cities and towns. He is now preparing plans for the water works in Alderson, W. Va. W. W. Bonson, formerly manager of the Iowa Iron Works Company, who was placed in charge of the mining machinery department of the company last fall, has now been made active manager of the plant. Phil Schwinn has been made assistant manager.

Maurer, Labadie & Co., South Bend, Ind., manufacturers of tube and boiler cleaning articles, have increased the equipment of their factory by the addition of $1000 worth of machinery. The company is marketing an automatic non-clogging flue brush, the demand for which, it is stated, has been growing with remarkable rapidity owing to certain special features. The firm is in the market for a second hand 30-inch x 8-foot planer and one sensitive drill.

The Wallace Machine & Foundry Company, Lafayette, Ind., has completed arrangements for the erection of a new steel erecting shop, which will be 90 x 44 feet. An air compressor, yoke and flange riveters, riveting and chipping hammers, reamer, etc., have been purchased for its equipment, and the shop will be fitted up with overhead carriers and ground track. The addition of this building will provide the company with about 42,000 feet of floor space, including foundry, blacksmith shop, machine shop, pattern making shop and the new erecting shop. The plant communicates with all the railroads entering Lafayette by a private switch track.

The Buffalo Forge Company has contracted for the erection of 70 houses at North Tonawanda, N. Y., for the use of employes of the Buffalo Steam Pump Company's plant, located at that point and which it controls. The forge company has more than doubled the size of the pump works since it obtained control and is now completing a large foundry addition. Over 500 men will be employed when the new additions are completed.

Julius Keller, Philadelphia, Pa., manufacturer of special tools and machinery, has let contract for an extension to his plant, 95 feet square, two stories. Only last fall an addition was built to the plant, and this new addition will double the capacity of the plant.

The Hoist Company, 20 South William street, New York, has incorporated with a capital stock of $50,000 to manufacture a new chain hoist for which many advantages are claimed. B. F. Mahler is president.

The Vulcan Foundry & Machine Company, House Building, Pittsburgh, will start up its plant at New Castle, Pa., in a few days and which has been idle for a long time. The company builds a general line of rolling mill and special machinery and has a considerable number of orders on its books.

M. L. Kline has disposed of his holdings in the Gauld & Kline Company, Portland, Ore., dealer in machinery, mill, plumbing and steam supplies, and has retired from the business.

The Cummings Machine Company, 34 Pine street, New York, has incorporated with a capital stock of $10,000 to manufacture threading tools which are designed to forge standard pipe threads on brass, copper and steel tubes where the walls of the tubes are too thin to cut the threads. This method of forging the threads on the tubes leaves the original tube thickness of metal at the juncture of the thread roots and leaves the tube at its original strength. The tube can be carried about and operated the same as the present stocks and dies now used to cut threads. George W. Phillips is president and treasurer; W. C. Heinkel, secretary, and C. L. Cummings, manager.

The Washington & Columbia River Railway Company, Walla Walla, Wash., contemplates moving its shops from Eureka Junction to Walla Walla and the erection of new buildings at the latter place.

Power Plant Equipment.

The Pittsburgh Piping & Equipment Company will erect a new plant in Pittsburgh, for which plans are now being made. The company will manufacture gas and steam fitting supplies.

The Waterloo Electric Light & Waterworks Company has been incorporated at Waterloo, Ind., with $25,000 capital stock. The directors are Charles A. Wilding, John Dreibelbiss and William J. Vesey.

A. J. Hammond, city engineer of South Bend, is asking for bids for three turbine water wheels of 200 horse-power.

The South Bend Power Company, South Bend, Ind., has ordered plans and surveys for a dam in the St. Joseph River and for the construction of a power house; estimated cost $500,000.

The Lyons Brothers Boiler Company, Chicago, has increased its capital stock from $10,000 to $100,000. The company is located in the Fisher Building and makes the Bonson safety boilers of the combined water tube and fire tube type.

The Phoenix Boiler Works Company, recently organized at Terre Haute, Ind., will build a plant there.

The Cheboygan Boiler Works, Cheboygan, Mich., will furnish the Blackmer Rotary Pump, Power & Mfg. Company, Petoskey, Mich., with a 125 horse-power Scotch marine internally fired boiler. The latter company is erecting new shops which will be completed about May 1.

The Power Company, Limited, Hampton, N. B., Canada, has been incorporated with a capital stock of $24,000 to manufacture gas producers for either stationary or marine work. The incorporators are J. E. and R. A. March, and F. V. Wedderburn.

The American Gasoline Motor Company, Baldwinsville, N. Y., recently incorporated with a capital stock of $20,000, has secured the old canning factory on Canton street, which it will equip with modern machinery for the manufacture of power launches and engines. The following are the officers: J. D.

Sweet, president; E. P. Epps, vice-president, and J. Tallmadge, secretary, treasurer and general manager. The company is closely allied with the American Knife Company, whose plant is also located at Baldwinsville.

George Barcus & Co., Wabash, Ind., have purchased the entire works of the Gemmer Engine Company, Marion, Ind., and is removing the equipment to Wabash. The company will continue the manufacture of the Gemmer stationary engines, the Gemmer stearing gear, a recent product, as well as automobile engines on contract.

Foundries.

The United States Cast Iron Pipe & Foundry Company, Celeviand, Ohio, was awarded contract by the city of Toledo (Ohio) for furnishing 475 tons of 6, 8, and 12 inch cast iron pipe at $27.70; 25 tons of 4-inch at $28 70, and specials at $55 per ton.

The Old Colony Foundry Company, East Bridgewater, Mass., is extending its foundry by an addition, 50 x 75 feet. A new traveling crane has already been ordered.

George D. Springer and Franklin Lister of the Springer & Lister Company, founder and machinist, South Knoxville, Tenn., have been granted a patent on an improved mine car wheel for which they claim many advantages over those now in use. The company has already received several orders for the wheels which will be made at its plant, but it is possible that a plant will be erected in Pittsburgh, or in a more easterly city, for the manufacture of this wheel, the outlook for the sale of which the company is very optimistic.

The new foundry which the American Locomotive Company is building at its Brooks works, Dunkirk, N. Y., will have a capacity of about 26,000 tons per year, an increase of 17,200 over the capacity of the old foundry. The building is to be equipped with electric traveling jib cranes over the cylinder floor, the cranes to have a reach of 20 feet, traveling about 250 feet.

Bridges and Buildings.

The Brown-Ketcham Iron Works, Indianapolis, Ind., has been awarded contract by the Board of Commissioners of the Port of New Orleans for the construction of seven new steel sheds along the river front at New Orleans, La. The contract is for steel framing and cast iron work only and amounts to $175,000, the company's bid being on the basis of 3.42c. per pound for steel. Specifications and plans are now being prepared for the sheathing, roofing, sashes, corrugated iron siding, gutter, &c., necessary to complete these sheds. The Board of Commissioners has decided to substitute steel doors for tarpaulin now used on old sheds and to provide the new sheds also with the steel doors to secure better protection of the contents of the sheds from inclement weather. This will involve an expenditure of about $100,000 and specifications will shortly be submitted to bidders.

The Kellogg Iron Works, Buffalo, N. Y., manufacturer of structural steel work, bridges, &c., has secured a tract of 15 acres on the Buffalo, Rochester & Pittsburg Railroad adjacent to the city line and during the coming summer and fall will erect a new plant on this site: meantime it will be used as a stock and storage yards. The present plant at Illinois and Mary streets will be continued until the new plant is completed.

Director Acker, of the Department of Public Works, city of Philadelphia, has awarded contracts for the building of the several bridges mentioned in *The Iron Age* February 1 as follows: Bridge over the Newtown Railroad at Wyoming avenue, Smedley Construction Company, $31,476; Twenty-fifth street bridge over the Connecting Railway, as well as that on the line of Front street over the same road, Richard Walsh, $44,367 and $33,735, respectively; Sedgely avenue bridges over the Philadelphia & Reading Railway, Richard Walsh, $28,385; western approach to the Spring Garden street bridge, Owego Bridge Company, Owego, N. Y., $92,100. The date of completion of the various contracts varies from four months to one year.

Hardware.

The Duer-Elderkin Spring & Mfg. Company, Pittsburgh, has applied for a charter with a capital of $20,000. The company proposes to build a plant in the Pittsburgh district for the manufacture of nuts, bolts and other articles.

The Wait-Fuller Cabinet Company, Portsmouth, Ohio, which was incorporated last year to manufacture a special line of sideboards, is erecting a new plant, comprising factory building, 90 x 140 feet; warehouse, 70 x 120 feet. Machinery equipment has been contracted for and goods will be placed on the market about June 1.

The Signalphone Company has been organized in Milwaukee, Wis., with a capital stock of $100,000 and has purchased the business of the Signalphone Alarm Company and the right to manufacture police and fire signal box systems. The incorporators and principal stockholders of the new company are H. O. Brumder, Dr. H. V. Wurdemann and John Stouthammer. The company will begin the manufacture of signal apparatus on a large scale. The patent, which the new company controls, is known as the interlocking system, making it possible to send in a fire alarm or telephone call over the same line without interrupting either service.

Fires.

The machine shop and round house of the Central Branch Railroad at Downs, Kan., were burned February 12.

The plant of the Roberts Chemical Company, Niagara Falls, was damaged by fire to the extent of $20,000 on the 16th inst.

Miscellaneous.

Luman Clogston, Fair Haven, Vt., has established a shop in that town for the manufacture of sheet iron and steel plate specialties, such as smokestacks, quarry tanks, water wheel cases and tubing.

The E. Stebbins Mfg. Company, Springfield, Mass., manufacturer of plumbers' brass goods, brass castings, etc., has changed ownership, H. M. Brewster and his associates having sold their holdings to Frederick Harris, L. J. Powers and A. H. Warner, Springfield, and F. L. Chapin, Southbridge, Mass. Reorganization of the Board of Directors will soon be effected. A. H. Warner will remain as treasurer and E. P. Marsh as superintendent. The business will be continued without change in product. The company is capitalized for $50,000 and employs about 150 men.

The Fore River Shipbuilding Company, Quincy, Mass., has re-elected practically the old board of officers, with Admiral Francis T. Bowles as president; H. G. Smith, manager; J. A. Sedgwick, treasurer, and Samuel T. MacQuarrie, clerk. The only change in the board of directors was the election of Wallace A. Donham in place of T. Jefferson Coolidge.

The Marion Grain Drill Company, Marion, Ind., will build a factory.

The United Electric & Apparatus Company, 200 Summer street, Boston, has been incorporated in Massachusetts with capital stock of $25,000 as manufacturer, dealer, importer and agent in electrical and mechanical specialties. The officers are: President, John McCloskey; treasurer, W. H. Keyes; clerk, J. P. Dorman. The company is the sole manufacturer of the Ziegler patent apparatus and specialties. The company has made arrangement for its temporary needs relative to tools, machinery, &c., and for the present will require nothing new in the way of equipment.

John N. Connelly, president of the Chamber of Commerce, Elmira, N. Y., and others have organized the Hilliard Clutch & Machine Company with a capital stock of $150,000 for the manufacture of an automatic shaft clutch, the invention of W. J. Hilliard. For the present the company will have parts of the clutch cast and will only assemble them, but later it is probable that a plant will be installed to manufacture the whole device. John M. Connelly is president; Samuel Thorpe, vice-president; Bertrand W. Nye, secretary, and Eugene Diven, treasurer.

The Stecker Electric & Machine Company, Detroit, Mich., which has been in operation about four and one-half years, has incorporated with the following officers: C. A. Stecker, president: W. G. Stecker, vice-president; A. J. Stecker, secretary and treasurer. The company manufactures electric and machine appliances and is about to place on the market a small electric massage machine.

The Electric Cable Company, 42 Broadway, New York, has received an order from the New York & Long Island Railroad Company for 15 miles of cable insulated with Voltax, the new high potential insulating compound. This order follows within a week upon that of the Interborough Rapid Transit Company for the same amount of material. The manufacturer of the compound states that it retains its elasticity and insulating properties for an indefinite period. It is impervious to atmospheric conditions and is proof against water, acid and alkali. Recent tests by the Electrical Testing Laboratories of New York show that the Voltax compound will not drip under 200 degrees F.

The Hamilton Metal Company, Philadelphia, Pa., has recently been incorporated with a capital of $20,000. The company has purchased the plant formerly occupied by the Hi-Speed Bronze Company, 2335-2337 Vine street, where it will engage in the general brass foundry and manufacturing business. The officers of the new corporation are: President, Henry H. Horrocks; secretary and treasurer, Henry Bain, Jr.; general manager, J. R. Bosbyshell.

New Mill for the International Harvester Company.—The International Harvester Company, Chicago, has decided to install a Morgan continuous merchant mill at its steel plant at South Chicago. No contract has yet been let, but authority has practically been given to proceed with this improvement. The Bessemer plant operated by the company is now running double turn, although when installed it was the intention to only operate it one turn a day. Billets on a conversion arrangement entered into last July are furnished to the Interstate Steel Company at the rate of about 4000 tons a month, and merchant bars in turn are delivered to the International Harvester Company. Since this contract was entered into the Bessemer department has been in continuous operation.

PERSONAL.

H. E. Sheldon, general superintendent of the Allegheny Steel Company, Pittsburgh, has been presented by the foremen of the plant with a diamond pin. Mr. Sheldon was also given a banquet on Tuesday evening, February 13.

O. A. Blackburn has resigned as general sales agent of the Monongahela River Consolidated Coal & Coke Company and has been appointed treasurer of the Sharon Steel Hoop Company, Pittsburgh, effective March 1.

Thomas E. Evans, for some years superintendent of the Lower Union mills of the Carnegie Steel Company, Pittsburgh, has resigned to accept a position with the Eastern Steel Company, Pottsville, Pa. The foremen of the Lower Union mills presented him with a diamond stud upon his retirement.

Directors of the Pittsburgh Coal Company have reorganized by re-electing the old officials, excepting Francis L. Robbins, president, who was succeeded by M. H. Taylor of Erie, Pa., Mr. Robbins being re-elected chairman of the board.

Thomas D. West, president, and Dr. Richard Moldenke, secretary, of the American Foundrymen's Association, met a number of Cleveland foundrymen in that city recently to arrange for the annual convention of the association, which will be held in Cleveland in June.

William T. Graham, president of the American Can Company, is in Europe and will be abroad about three months.

James C. Corns, Massillon, Ohio, advises us that contrary to published reports he will not represent the Republic Iron & Steel Company at the wage conferences this year with the Amalgamated Association. Mr. Corns has charge of the plants of the Republic Iron & Steel Company in the Massillon district.

J. E. Hubbert, until recently affiliated with the Chicago sales office of the American Sheet & Tin Plate Company, has been appointed general sales manager of the branch office of the Republic Iron & Steel Company at Chicago, which will be opened as soon as the general offices are removed to Pittsburgh. Prior to his affiliation with the American Sheet & Tin Plate Company Mr. Hubbert was vice-president of the Corning Steel Company, Hammond, Ind., and a member of the firm of Hubbert & Hubbert, dealers in iron and steel.

W. H. Griffiths, who recently severed his connection with the Waynesburgh Forge, Sheet & Tin Mills, is president of the Griffiths Charcoal Iron Mills, Washington, Pa., manufacturer of the Griffiths genuine charcoal iron roofing plates and galvanized sheets, and in the future intends to give his entire time to this company.

J. F. Kent, who has been in charge of the rolling mill division of the Tennessee Coal, Iron & Railroad Company at Bessemer, Ala., for the past four years, and previous to that with the National Steel Company at Sharon, Pa., will take charge of the rolling mill division of the Dominion Iron & Steel Company, Sydney, Nova Scotia, on March 1.

Arthur A. Fowler and E. Isham of Rogers, Brown & Co., New York, are expected to return from abroad on Saturday.

In a paper read before the Institution of Mining and Metallurgy in England on January 18, 1906, on "Ferro-Alloys Used in the Manufacture of Alloy Steels," O. J. Steinhart refers to the nickel ore derived from the nickel and copper district of Sudbury, Ontario. The average amount of nickel is about 3 per cent. and that of copper under 2 per cent. From the Dominion Geological Survey the following computation was made in round figures: 1902—Ore raised, 270,000 tons; ore smelted, 233,000 tons; average percentage of nickel, 2.55; copper, 1.78 per cent. 1903—Ore raised, 153,000 tons; ore smelted, 220,000 tons; average percentage of nickel, 3.16; copper, 1.81 per cent. Over 300,000 tons were mined in 1905.

At the meeting of the Board of Directors of the Chicago Pneumatic Tool Company in New York, February 20, the following officers were elected: J. W. Duntley, president; W. O. Duntley, first vice-president; F. W. Prince, second vice-president; L. Beardsley, treasurer, and W. B. Seelig, secretary.

OBITUARY.

SAMUEL THOMAS.

Samuel Thomas, for many years president of the Thomas Iron Company, Hokendauqua, Pa., and of the Pioneer Iron & Mfg. Company, Birmingham, Ala., died at his home at Catasauqua, Pa., February 21, aged 79 years.

JOHN W. HOWE, Worcester, Mass., for many years connected with the wire goods manufacturing business, died February 15, aged 84 years. He was a native of Holden, Mass., and went to Worcester in 1859, forming a partnership with Norman P. Childs as Childs & Howe for the manufacture of wire goods. He prospered in the business and in 1874, with several others, organized the National Mfg. Company, which is one of the prominent wire goods manufacturers of Worcester. He retired from active management of the business six years ago.

Labor Notes.

Five bills now pending before the State Legislature are causing considerable agitation among the manufacturing and employing interests in Ohio. The manufacturers of the State have organized and are co-operating in an endeavor to defeat these bills. The following have been appointed a committee to press matters: W. D. Sayle, Cleveland Punch and Shear Works; A. H. Noah, Diamond Rubber Company, Akron; John Stambaugh, Youngstown Steel Company; John J. Manning, National Malleable Castings Company, Toledo; R. J. Beatty, Federal Glass Works, Columbus; T. A. Rodefer, National Glass Works, Bellaire; A. C. Marshall, secretary Dayton Employers' Association; A. H. Heisey, Heisey Mfg. Company, Newark, and Charles F. Waltz, secretary Cincinnati Employers' Association. One of these bills was editorially discussed in our last week's issue. Several deal with the employment of minors, proposing very stringent regulations. Another revolutionizes employers' liability. It is further reported that an eight hour day bill will be introduced and an anti-injunction law be demanded.

Strikes reported to the Bureau of Statistics of New Jersey numbered 74 in 1905. In no instance was an effort made by either side to arbitrate differences, though New Jersey has a State Board of Arbitration. The greater number of the year's strikes were by workmen in the building trades, principally bricklayers, plumbers, carpenters, painters, lathers, plasterers and electricians. There was one blast furnace strike, one strike of foundry laborers, one of iron molders and two of machinists. The causes are distributed as follows: Increase in wages, 26; against a reduction in wages, 10; against members of rival unions, 4; against the employment of nonunion men, 12; for a shorter workday, 4; to compel the discharge of foreman, 1; increase of wages and shorter workday, 2; against employment of workmen from outside localities, 1; disagreement over apprentices' wages, 1; because of a fellow unionist's discharge, 2; for recognition of the union, 1; sympathetic, 2. Of the total, 22 strikes are reported to have been wholly successful, 17 partly successful, a compromise agreement being reached, while the remaining 35 strikes failed completely.

At the recent annual meeting of the officers and branch managers of the Crocker-Wheeler Company at Ampere, N. J., announcement was made that the business during 1905 not only exceeded that of the preceding year, but also that of 1903, the previous record year. The company further reported remarkable progress in the alternating current field during the year just ended and referred especially to the building and marketing of a line of core type transformers, for which special improvements are claimed. The engineering department announced two new lines of electrical machinery, which are shortly to be put on the market.

The Iron and Metal Trades

Practically all of the leading distributing points report a dull Pig Iron market, which may continue for weeks. This does not trouble the makers, since they have their order books filled well into summer, and since their customers are still crowding them for prompt deliveries and are even asking for shipments ahead of contract time. But there are some sellers who want to book orders for the third quarter, and it is for forward Iron chiefly that some weakness has developed. In some instances this has extended to lower grades, and thus some sales of Southern Forge have been made in the Pittsburgh district on the basis of $12 per ton at furnace. In the Central West second hands are offering moderate quantities of both Basic and Bessemer at a concession.

In the Chicago district the withdrawal of an inquiry for 16,000 tons of Foundry Iron on the part of the Allis-Chalmers Company has found some imitators and has had an adverse effect.

New business is not coming up in Finished Iron and Steel in any large volume, but there is nothing discouraging in this fact. Ordinarily December and January are dull months all along the line in the Finished trades. This year they were exceedingly busy months, and the usual midwinter lull has only appeared in February. Furthermore, the mills are booked so far ahead that buyers are satisfied to wait until definite arrangements can be made for deliveries before placing their orders.

In the lighter lines, in Sheets, Tin Plate, Wire products and Tubes, shipments continue in excess of production. The open question on which we cannot expect any light until the middle of March is whether these deliveries, coupled with the freer consumption due to an open winter, really amount to a practical anticipation of the usual spring trade. While prices have been kept relatively low during this boom, they would naturally weaken somewhat if an effort were made to secure orders for later delivery before this situation is thoroughly cleared up.

In the Plate trade some further business has been placed with Pittsburgh mills by lake shipbuilders.

Among the orders for Structural Material are 9000 tons for bridge work for the Lake Shore, 3500 tons for sheds at New Orleans, 4500 tons for the Homestead Works and a very considerable number for buildings. These include the Brunswick Building for 5000 tons, while the Astor Apartment House will call for 7000 tons.

During the past ten days there has been a flood of inquiries for comparatively small lots of Steel Rails for minor extensions of steam roads and for trolley lines.

A very interesting export order has just been taken by the American Bridge Company. It is for 15,000 tons of Fabricated Structural Material for bridges in Korea, in connection with railroad construction which the Japanese are carrying out.

Negotiations between J. J. Hill and the United States Steel Corporation for the control of the tonnage of the Ore lands of the Great Northern road have not yet been finally terminated. They involve an infinite amount of details.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type, Declines in Italics.

At date, one week, one month and one year previous.

	Feb.21, 1906.	Feb.14, 1906.	Jan.24, 1906.	Feb.22, 1905.
PIG IRON:				
Foundry No. 2 Standard, Philadelphia	$18.50	$18.50	$18.50	$17.50
Foundry No. 2 Southern, Cincinnati	16.75	16.75	16.75	16.25
Foundry No. 2, Local, Chicago	*19.00*	19.00	19.25	17.50
Bessemer, Pittsburgh	18.35	18.35	18.35	16.35
Gray Forge, Pittsburgh	*17.10*	17.35	17.35	16.00
Lake Superior Charcoal, Chicago	*20.00*	20.00	20.50	18.50
BILLETS, RAILS, &c.:				
Bessemer Billets, Pittsburgh	27.00	27.00	27.00	24.00
Forging Billets, Pittsburgh	32.00	32.00	32.00	26.00
Open Hearth Billets, Phila	29.00	29.00	29.00	28.00
Wire Rods, Pittsburgh	34.00	34.00	34.00	31.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL:				
O. Steel Rails, Chicago	*15.00*	15.00	16.50	14.50
O. Steel Rails, Philadelphia	*16.75*	17.25	17.75	18.00
O. Iron Rails, Chicago	*21.50*	21.50	23.00	19.50
O. Iron Rails, Philadelphia	*22.00*	23.00	24.50	23.00
O. Car Wheels, Chicago	19.00	19.00	19.00	16.25
O. Car Wheels, Philadelphia	18.75	18.75	18.75	16.00
Heavy Steel Scrap, Pittsburgh	*16.00*	16.00	17.00	15.50
Heavy Steel Scrap, Chicago	*13.50*	13.50	15.00	14.00
FINISHED IRON AND STEEL:				
Refined Iron Bars, Philadelphia	*1.73½*	1.73½	1.83½	1.73½
Common Iron Bars, Chicago	*1.75*	1.75	1.80	1.65
Common Iron Bars, Pittsburgh	1.85	1.85	1.85	1.65
Steel Bars, Tidewater, New York	1.64½	1.64½	1.64½	1.54½
Steel Bars, Pittsburgh	1.50	1.50	1.50	1.40
Tank Plates, Tidewater, New York	1.74½	1.74½	1.74½	1.74½
Tank Plates, Pittsburgh	1.60	1.60	1.60	1.60
Beams, Tidewater, New York	1.84½	1.84½	1.84½	1.74½
Beams, Pittsburgh	1.70	1.70	1.70	1.60
Angles, Tidewater, New York	1.84½	1.84½	1.84½	1.74½
Angles, Pittsburgh	1.70	1.70	1.70	1.60
Skelp, Grooved Steel, Pittsburgh	1.57½	1.57½	1.57½	1.60
Skelp, Sheared Steel, Pittsburgh	1.60	1.60	1.60	1.65
SHEETS, NAILS AND WIRE:				
Sheets, No. 27, Pittsburgh	2.30	2.30	2.30	2.20
Wire Nails, Pittsburgh	1.85	1.85	1.85	1.80
Cut Nails, Pittsburgh	**1.80**	1.80	1.75	1.80
Barb Wire, Galv., Pittsburgh	2.30	2.30	2.30	2.25
METALS:				
Copper, New York	*17.87½*	17.87½	18.12½	15.25
Spelter, St. Louis	*5.95*	5.95	6.35	5.97½
Lead, New York	*5.35*	5.40	5.75	4.45
Lead, St. Louis	*5.27½*	5.35	5.45	4.30
Tin, New York	*36.35*	36.60	36.50	28.75
Antimony, Hallett, New York	**16.00**	16.00	14.25	8.00
Nickel, New York	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	3.69	3.69	3.69	3.74

Chicago.

FISHER BUILDING, February 21, 1906.—(*By Telegraph.*)

With an absence of new business in finished lines and a lull in Pig Iron, resulting in slightly lower quotations on Southern grades, deductions have been made by many consumers that the Western Iron and Steel market generally is on the verge of a decline and that there will be a general lowering of values on all commodities. Careful investigation of the situation, however, shows no falling off in consumption, and judging from mill production it is greater than ever. The Illinois Steel Company has specifications at its mills that cover the output of three months, and additional specifications received from day to day are on an average 30 per cent. greater than shipments. Wire mills as well as the finishing departments of the Illinois Steel Company are suffering from a shortage of Steel, and notwithstanding the firing of two new Open Hearth furnaces at the South Works sufficient Steel is not being produced to meet the demands of the finishing mills. The 16,000 tons of Bessemer Pig Iron purchased from Valley furnaces last week by the United States Steel Corporation are for consumption at mills in this district to make up the shortage of this metal now existing. That consumers of Finished Material are not covering future requirements is the logical result of the heavy buying last fall, nor will new contracts be entered into until the bulk of the tonnage already contracted for is delivered. The withdrawal of the inquiry for 15,000 tons of Pig Iron by the Allis-Chalmers Company has undeniably weakened the Iron market, and other prospective buyers that would have closed if this purchase had been made are also out of the market temporarily. Nevertheless, considerable spot business was placed with Southern furnaces for

deliver before March 1, when an advance of 25c. in freight rates goes into effect. The week's transactions do not include any notable tonnages, the largest contract reported requiring 3000 tons of Structural Shapes, taken by the Brown-Ketcham Iron Works, Indianapolis, to be used in the erection of Steel sheds on New Orleans docks. Plate specifications have materially increased and are heavier than at any time this year. The demand for Cast Iron Pipe is largely limited to gas company requirements, the total for the week aggregating 3000 tons. Prospective municipal lettings are of little importance. The downward march of Old Material has been temporarily checked, although lower prices have been made on Wrought. The Wire trade is without loss of strength and despite the dearth of new orders specifications are greatly in excess of mill capacity.

Pig Iron.—The market is weaker, and while a few sellers of Southern are nominally quoting on a basis of $14.50, Birmingham, for No. 2, sales continue to be made at $14. Sales of several lots for immediate shipment ranging from 500 to 1000 tons have been reported at prices ranging from $14 to $14.25, Birmingham, and one sale of a high grade Iron for second quarter delivery amounting to 1500 tons was made at $14.50. An accumulation of low grade Iron has brought out low prices on Forge, and owing to the high prices that have been prevailing for Cast Scrap until within 30 days very little Silicon Iron running from 3 to 4 per cent. was moved, and a sale of 1000 tons was made to a Western consumer by a Southern producer at a concession of about $1 below the price that has been ruling. The withdrawal of the inquiry of the Allis-Chalmers Company for 15,000 tons has weakened the general situation, and other consumers that were about to cover are withholding inquiries and purchases for the present at least. Northern grades, on the other hand, are without change. We quote at Chicago as follows:

Lake Superior Charcoal	$20.00 to $20.50
Northern Coke Foundry, No. 1	19.50 to 19.75
Northern Coke Foundry, No. 2	19.00 to 19.25
Northern Coke Foundry, No. 3	18.50 to 18.75
Northern Scotch, No. 1	20.00 to 20.25
Ohio Strong Softeners, No. 1	20.05 to 20.30
Ohio Strong Softeners, No. 2	19.55 to 19.80
Southern Coke, No. 1	18.15
Southern Coke, No. 2	17.65
Southern Coke, No. 3	17.15
Southern Coke, No. 4	16.65
Southern Coke, No. 1 Soft	18.15
Southern Coke, No. 2 Soft	17.65
Southern Gray Forge and Mottled	16.15
Malleable Bessemer	19.00 to 19.25
Standard Bessemer	19.55
Jackson Co. and Kentucky Silvery, 6 %	21.30
Jackson Co. and Kentucky Silvery, 8 %	23.30
Jackson Co. and Kentucky Silvery, 10 %	25.30

Metals.—There is little trading. While slightly higher prices are named on Copper, Sheet Zinc is off 25c. and Tin and Lead are lower. We quote: Casting Copper, 18c. to 18½c.; Lake, 18½c. to 19c.; Pig Tin, car lots, 37¾c. to 38¼c.; small lots, 38½c. to 39½c.; Spelter, prompt delivery, 6⅜c. to 6⅝c. for car lots; Lead, Desilverized, 5.50c. to 5.75c. for 50-ton lots; Corroding, 6c. to 6.25c. for 50-ton lots; on car lots, 2¼c. per 100 lbs. higher; Sheet Zinc is $7.50 list, f.o.b. Laselle in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 15½c.; Heavy Copper, 15¼c.; Copper Bottoms, 14¼c.; Copper Clips, 15¼c.; Red Brass, 14¼c.; Red Brass Borings, 12¼c.; Yellow Brass, Heavy, 10¾c.; Yellow Brass Borings, 9¾c.; Light Brass, 8¼c.; Lead Pipe, 4¾c.; Tea Lead, 4½c.; Zinc, 4¾c.; Pewter, No. 1, 24c.; Tin Foil, 29c.; Block Tin Pipe, 27½c.

(By Mail.)

Billets and Rods.—The Illinois Steel Company now has two of the seven furnaces of its new Open Hearth plant in operation and by April 1 the remaining five will be producing. This will increase the Steel output at this plant nearly 1000 tons daily. Rods continue scarce and the American Steel & Wire Company is temporarily out of the market, not having sufficient supply for its own finishing departments. We quote Bessemer and Open Hearth Rods at $36, Chicago, and Forging Billets in small lots for prompt delivery, $36 to $37, f.o.b. mill, Chicago, with the usual extras.

Rails and Track Supplies.—No contracts of importance were taken by the Western mills during the past week for Standard Section Rails, and being booked for three months on the lighter sections little additional tonnage was placed with the Light Rail mills. Specifications for Track Supplies are enormous and greatly in excess of mill shipments. This indicates that the railroads are anticipating their wants and will carry forward their improvements much earlier than in former years. The Illinois Steel Company is having plans prepared for the erection of a new Bolt factory at Joliet, as the present capacity is inadequate to meet the heavy Western demand. Quotations are unchanged, as follows: Angle Bars, accompanying Rail orders, 1906 delivery, 1.50c.; carload lots, 1.75c.; Spikes, 2.10c.; Track Bolts, 2.65c. to 2.75c., base, Square Nuts. The store prices on Track Supplies range from 15c. to 20c. above mill prices. Light Rails, 30 to 45 lb. sections, $27 to $28; 25-lb., $28 to $29; 20-lb., $29 to $30; 16-lb., $30 to $31; 12-lb., $31 to $32, and lighter Sections down to 8-lb., $38 to $40, f.o.b. mill. Standard Sections are unchanged at $28, f.o.b. mill, full freight to destination.

Plates.—Boiler makers and structural fitting shops are specifying on old contracts more freely than at any time this year and the mills that had almost caught up on their orders early this month now have more than 30 days' tonnage before them. Little new business, except small lots from repair shops, is being offered and the mills generally are operating on contracts placed last fall. Quotations are firmly maintained and are unchanged, as follows: Tank quality, ¼-inch and heavier, wider than 6¼ and up to 100 inches wide, inclusive, car lots, Chicago, 1.76½c.; 3-16 inch, 1.86½c.; Nos. 7 and 8 gauge, 1.91½c.; No. 9, 2.01½c.; Flange quality, in widths up to 100 inches, 1.86½c., base, for ¼-inch and heavier, with the same advances for lighter weights; Sketch Plates, Tank quality, 1.86½c.; Flange quality, 1.96½c. Store prices on Plates are as follows: Tank Plate, ¼-inch and heavier, up to 72 inches wide, 2c. to 2.10c.; from 72 to 96 inches wide, 2.10c. to 2.20c.; 3-16 inch up to 60 inches wide, 2.10c. to 2.20c.; 72 inches wide, 2.35c. to 2.45c.; No. 8, up to 60 inches wide, 2.15c. to 2.25c.; Flange and Head quality, 25c. extra.

Structural Material.—The Brown-Ketcham Iron Works, Indianapolis, was awarded the contract for erecting seven Steel sheds on New Orleans docks, aggregating 3000 tons of material. The Steel will be rolled by the Illinois Steel Company. The contract for the erection of the County Building was awarded to the Wm. Grace Company, but bids for furnishing the Steel have again been asked for by the general contractors. Demand for Shapes for prompt delivery is insistent and the prevailing quotation is 2.25c., although sizes hard to procure are sold as high as 2.50c. Mill quotations remain unchanged, as follows: Beams and Channels, 3 to 15 inches, inclusive, 1.86½c.; Angles, 3 to 6 inches, ¼ inch and heavier, 1.86½c.; Angles, larger than 6 inches on one or both legs, 1.96½c.; Beams, larger than 15 inches, 1.96½c.; Zees, 3 inches and over, 1.86½c.; Tees, 3 inches and over, 1.91½c., in addition to the usual extras for cutting to extra lengths, punching, coping, bending or other shop work.

Sheets.—The American Sheet & Tin Plate Company, notwithstanding the fact that it is operating its mills at their capacity, is unable to make deliveries on Galvanized Sheets in less than 90 days, and on Black Sheets 60 days are required. This is an indication of the heavy demand prevailing for this material, and as this is the hight of the season on Galvanized stock, independent mills are also behind on deliveries. New tonnage, however, is light, as specifications now coming forward are on contracts closed last fall, when prices were from $4 to $6 a ton lower than those now prevailing. Quotations are unchanged, as follows: Blue Annealed, Nos. 9 and 10, 1.86½c. to 1.91½c.; Nos. 16 and 17, 2.06½c. to 2.11½c.; Box Annealed, Nos. 18 to 20, 2.26½c. to 2.31½c.; No. 27, 2.46½c. to 2.51½c.; No. 28, 2.56½c. to 2.61½c.; Galvanized Sheets, Nos. 10 to 14, 2.61½c.; Nos. 17 to 21, 2.86½c.; Nos. 22 to 24, 3.01½c.; Nos. 25 and 26, 3.21½c.; No. 27, 3.41½c.; No. 28, 3.61½c.; No. 30, 4.11½c. Sheets from store: Blue Annealed, Nos. 10 and 11, 2.10c. to 2.20c.; Nos. 12 and 13, 2.15c. to 2.25c.; Nos. 14 and 15,, 2.20c. to 2.30c.; No. 16, 2.30c. to 2.40c.; Box Annealed, Nos. 18 to 20, 2.50c. to 2.60c.; Nos. 22 to 24, 2.60c. to 2.70c.; No. 26, 2.65c. to 2.75c.; No. 27, 2.70c. to 2.80c.; No. 28, 2.80c. to 2.90c.; No. 30, 3.25c. to 3.35c. Galvanized from store: Nos. 10 to 20, 3c. to 3.10c.; Nos. 22 to 24, 3.15c. to 3.25c.; No. 26, 3.35c. to 3.45c.; No. 27, 3.55c. to 3.65c.; No. 28, 3.75c. to 3.85c.; No. 30, 4.85c. to 5.05c.

Bars.—There has been no further decline on Iron Bars during the week, and as the Scrap market has remained practically stationary it is doubtful whether lower prices will be made in the near future. Several large railroad interests are now contemplating purchases of 1000-ton lots and the prevailing quotation is 1.75c. Quotations on Hoops from store have been advanced $2 a ton, notwithstanding the fact that the mills made an advance of only $1. We revise quotations as follows: Iron Bars, 1.75c.; Steel Bars, 1.66½c., both half extras; Hoops, 2.06½c., extras as per Hoop card; Bands, 1.66½c., as per Steel card; Soft Steel Angles and Shapes, 1.66½c., half extras. Store prices are as follows: Bar Iron, 2.20c. to 2.25c.; Steel Bars, 1.85c. and as high as 2c. is asked on certain scarce sizes; Steel Bands, 1.85c. to 1.90c., half extras; Soft Steel Hoops, 2.30c. to 2.40c., full extras.

Merchant Pipe.—The continued open weather has been favorable to a much heavier consumption of the smaller sizes of Pipe than is customary at this season of the year, building operations being carried on without interruption. Quotations, however, continue on a low basis and 81 off the list is now generally made by all the mills. Official discounts on car lots, which are shaded one point, are as follows: Black Steel Pipe, 78.35 per cent. on the base sizes ¾ to 6 inches, and Galvanized, 68.35 per cent. Iron Pipe is quoted from one and one-half to two points higher. From store in small lots Chicago jobbers are quoting 76½ to 77 per cent. on Black Steel Pipe, ¾ to 6 inches.

Boiler Tubes.—Western boiler makers are specifying more freely than for many months, and Western manufacturers and distributers have been in receipt of heavy specifications during the past week. Quotations are well maintained and are without change. Official discounts, base sizes, in car lots, are as follows: Steel Tubes, 62.35; Iron, 51.35; Seamless, 50.35; 2½-inch and smaller and lengths over 18 feet, and 2½-inch and lengths over 22 feet, 10 per cent. extra. Store prices are unchanged, as follows:

	Steel.	Iron.	Seamless.
1 to 1¼ inches	40	35	42½
1¾ to 2¼ inches	50	35	35
2½ inches	52½	35	30
2¾ to 5 inches	60	47½	42½
6 inches and larger	50	35	..

Merchant Steel.—Western implement manufacturers are not yet considering contracts for future requirements, although many of the contracts entered into last year will be largely overspecified if the present anticipation of shipments continues. Quotations are unchanged, as follows: Planished or Smooth Finished Tire Steel, 1.70c.; Iron Finish up to 1½ x ½ inch, 1.65c., and Iron Finish, 1½ x ½ inch and larger, 1.50c., base, Pittsburgh, and Channels for solid rubber tire are quoted as follows: ¾, ⅞ and 1 inch, 2c., and 1⅛ inch and larger, 1.90c., Pittsburgh; Smooth Finished Machinery Steel, 1.91½c.; Flat Sleigh Shoe, 1.71½c.; Concave and Convex Sleigh Shoe, 1.86½c.; Cutter Shoe, 2.40c.; Toe Calk Steel, 2.21½c.; Railway Spring, 1.86½c.; Crucible Tool Steel, 6½c. to 8c.; special grades of Tool Steel, 13c. and up; Shafting, 50 per cent. discount on car lots and 45 per cent. in less than car lots, in base territory.

Cast Iron Pipe.—Gas companies are at present the largest factors in the market and the sales of small sizes made during the week aggregate 3000 tons. Only a few small ones, municipal lettings, are up for consideration, Dayton, Ohio, closing bids February 27 on 400 tons of 4 to 12 inch Pipe, and the city of Milwaukee will close for 800 tons of 6-inch Pipe on March 1. Prices are firm but unchanged, as follows: Water Pipe, 4-inch, $31; 6, 8, 10 and 12 inch, $30; over 12-inch, $29, with $1 extra for Gas Pipe. Large municipal contracts are usually placed at somewhat lower basis.

Coke.—The threatened Coal strike has not strengthened Coke prices in this market and the heavy consignments from the Connellsville field are holding quotations at a comparatively low level. High Sulphur Foundry Coke has been sold here during the week on the basis of $2.50 at the ovens, while strictly Connellsville 72-hour Coke is offered at $2.75 to $3, equivalent to $5.40 to $5.65, Chicago. By-product Coke, both for spot shipment and future delivery, is quoted at $5.80, and Western foundries are beginning to cover their requirements until July 1 on this basis.

Old Material.—The decline in Scrap prices during the past week has been almost entirely limited to Wrought Material, which has been offered as low as $15, Chicago. The mills, while not generally buying, are picking up all the desirable stock offered and dealers that sold short at higher prices are now beginning to cover. This has resulted in more transactions than would be ordinarily expected on a market of this kind and has temporarily checked the downward tendency of values. No large railroad lists have come out during the week and the prevailing impression is that material is being held until a more stable market is established. The range of prices paid by large consumers to producers and dealers, car lots, f.o.b. Chicago, is as follows:

Old Iron Rails	$21.50 to $22.00
Old Steel Rails, 4 feet and over	16.00 to 16.50
Old Steel Rails, less than 4 feet	15.00 to 15.50
Heavy Relaying Rails, subject to inspection	27.00 to 27.50
Old Car Wheels	19.00 to 19.50
Heavy Melting Steel Scrap	13.50 to 14.00
Frogs, Switches and Guards	14.50 to 15.00
Mixed Steel	13.50 to 14.00

The following quotations are per net ton:

Iron Fish Plates	$17.00 to $17.50
Iron Car Axles	23.50 to 24.00
Steel Car Axles	19.50 to 20.00
No. 1 Railroad Wrought	15.50 to 16.00
No. 2 Railroad Wrought	14.50 to 15.00
Locomotive Tires, smooth	14.25 to 14.50
Railway Springs	14.50 to 15.00
No. 1 Dealers' Forge	12.50 to 13.00
Wrought Pipes and Flues	11.25 to 11.50
Mixed Busheling	10.75 to 11.00
Iron Axle Turnings	11.50 to 12.00
Soft Steel Axle Turnings	11.50 to 12.00
Machine Shop Turnings	11.00 to 11.50
Cast Borings	9.50 to 10.00
Mixed Borings, &c.	9.00 to 9.50
No. 1 Mill	9.50 to 10.00
No. 2 Mill	8.00 to 8.50
No. 1 Boilers, cut to Sheets and Rings	11.00 to 11.50
No. 1 Cast Scrap	13.00 to 13.50
Stove Plate and Light Cast Scrap	12.00 to 12.50
Railroad Malleable	14.00 to 14.50
Agricultural Malleable	13.00 to 13.50

The Youngstown Sheet & Tube Company, Youngstown, Ohio, maker of the New Process brand of galvanized sheets, will hereafter stencil this brand on every bundle.

Philadelphia.

REAL ESTATE TRUST BUILDING, February 20, 1906.

The Iron and Steel markets are less active than they have been for quite a while, but prices are not materially changed, except that makers are less insistent on higher figures. Buyers are disposed to go slow, and for the present it appears to be a "stand off" on both sides. It is an interesting problem to know how long this will continue and which side will be the first to break through. The producing interests are in a strong position, having nearly everything sold well on toward midsummer, while in most lines consumers are so bare of stock that they are calling for deliveries with more urgency than ever. This of course makes an exceedingly strong market for short deliveries, but when it comes to long dates the complexion appears to be somewhat different. There is nothing bad in prospect, but there is an indefiniteness that is rather perplexing and which will become more so as the season advances, unless the deadlock is broken by action from one side or the other. Consumers take the ground that prices, although not inordinately high, are higher than they have been at any time since the summer of 1903, and as production is now 50 per cent. larger than it was at that time they feel that they run little or no risk by working off their old contracts, rather than to increase their responsibilities. There are other influences which tend to restrict business temporarily, although they may pass away without any real injury to the trade. The labor question as it affects the coal trade, and railroad and tariff agitation, the break in stocks last week, and the large offerings of new securities, are not calculated to inspire confidence in regard to further expansion in the Iron and Steel trades. When these matters are satisfactorily arranged, it may be that another forward movement will be inaugurated, but when the Iron and Steel trades begin to pause the hesitation usually lasts until there is some very clear light ahead. It may be remarked that pauses are frequent, and that each pause for some time past has been a preliminary to increased activity and to stronger if not higher prices; but such reasons do not appear to exist at the present time. Some of these have been referred to already; others are the continued increase in the production of pig iron, which at the present time is estimated to be the largest in the entire history of the trade. It is obvious, therefore, that if prices are to be maintained it must be on the basis of more business in 1906 than was turned in during 1905, as a very slight decrease in the demand would make all the difference between a skimp supply and a slight excess. There is no apparent reason for predicating unfavorably, but it is quite clear that buyers are carefully feeling their way along and are not likely to abandon that attitude until there is sufficient evidence to warrant them in doing so. Meanwhile the producing interests are in a position to stand a considerable siege, and they also will probably hold out until prospects are much less favorable than they appear to be at the present time.

Pig Iron.—The trade has reached a point at which opinions seem to vary. Some are a little disposed to look for easier markets; others see no reason why present rates should not be maintained, but there are very few who expect anything more than that. This feature has already been considered in some of its phases, so that it is only necessary to remark that temporarily buying has been considerably reduced, which, however, does not necessarily imply that the volume of business is reduced or that it will be reduced. There is plenty of time between now and May or June to bring in lots of new business, while in the meantime order books are so heavily loaded that producers are by no means certain of being able to fill all their contracts promptly. The suspension of active buying is due to uncertainties in regard to conditions during the last half of the year. There is no reason to doubt that the volume of business will be very large, but it must necessarily be large to maintain prices at their present level, and as the question of values will depend on the extent of the demand, consumers naturally want some tolerably distinct evidences in regard to this matter before they begin to make arrangements for their fall trade. This will take time to develop, so that in the meanwhile it should not be expected that buying will be very aggressive; neither are sellers likely to abandon their position until there are better reasons for doing so than appear at the present time. Every week will throw some new light on the situation, however, so that the "stand off" may continue for a month or two, or, with new buying or enforced selling, it may come to a very abrupt termination. It is of course impossible to say what the final outcome will be, but it is pretty certain that when the movement begins it will be of a decided character. Prices during the week have not shown any distinct change, although there is more selling at the inside figure and practically nothing doing at the outside unless for prompt shipments. It is even mentioned that first-class business has been taken at concessions from the lowest quotations, and the statement is probably true. There is not enough doing to give the market a thorough test, but the average of prices to-day would be about as follows for Philadelphia and nearby deliveries:

No. 1 X Foundry	$19.00 to $19.25
No. 2 X Foundry	18.50 to 18.75
No. 2 Plain	17.50 to 18.00
No. 2 Southern	18.75 to 19.00
Standard Gray Forge	16.50 to 17.00
Basic, nominal at	17.90 to 18.00
Low Phosphorus	25.50 to 26.50
Bessemer	19.50 to 19.75
Malleable Iron	19.00 to 19.25

Steel Alloys.—The situation is very much strained, although it is claimed that prospects as regards increased supplies are improving. Spot lots and 30 to 60 day deliveries command high prices, while there is a slightly easier feeling on the more extended deliveries. The inside quotations represent deliveries during the last half of the year, the outside for spot and early shipments:

Silico Spiegel, 10 and 18 per cent	$43.00 to $50.00
Ferrosilicon, 50 per cent	92.00 to 95.00
Spiegeleisen, 20 per cent	38.00 to 45.00
Ferromanganese, 80 per cent	105.00 to 150.00

Muck Bars.—The demand is extremely quiet, with no inquiries likely to lead to immediate business. Nominal prices range from $28 to $29, f.o.b. sellers' mills.

Steel.—Some large orders have been placed, and mills have about all they can do for two or three months. Prices are steady at about $29, delivered, for Open Hearth Steel in good sized lots. Forging Steel commands $33 to $38, according to quantity and specification.

Plates.—There is no unusual movement in the Plate trade, although the mills are quite full up with orders. Some are a little dull in some of their departments, but on the whole the position is extremely satisfactory, with prospects of great activity for a long while. Prices unchanged as follows:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel	1.73½	1.78½
Flange or Boiler Steel	1.83½	1.88½
Marine, A. B. M. A. and Commercial Fire Box Steel	1.93½	1.98½
Marine	2.13½	2.18½
Locomotive Fire Box Steel	2.23½	2.28½

The above are base prices for ¼-inch and heavier. The following extras apply:

	Extra per 100 pounds.
3-16-inch thick	$0.10
Nos. 7 and 8, B. W. G.	.15
No. 9, B. W. G.	.25
Plates over 100 to 110 inches	.05
Plates over 110 to 115 inches	.10
Plates over 115 to 120 inches	.15
Plates over 120 to 125 inches	.25
Plates over 125 to 130 inches	.50
Plates over 130 inches	1.00

Structural Material.—A great deal of work is to be done during the spring and summer months, so that the mills are assured of full employment, although the capacity for production is steadily increasing. This feature will no doubt be of increasing importance as the season advances and has already resulted in entering orders with guarantees of more prompt deliveries than has been possible at any time during the past several months. Prices, however, are firm and unchanged, as follows: Beams, Channels and Angles, 1.83½c. to 2c., delivered.

Bars.—Business has dropped off a good deal during the past two or three weeks, although specifications are fairly satisfactory; but buyers are easily frightened and at the first mention of a possible decline orders are cut down to the smallest limit possible. Prices for Refined Iron are nominally 1.83½c., but for good sized lots some mills would probably quote a tenth less, although much would depend on the character of the order and dates of specification. Steel Bars are steady at about 1.63½c., but the demand is only fair.

Sheets.—The Sheet trade is fairly active, but there are no special features to note. Prices are steady, as follows: Nos. 18 to 20, 2.40c.; Nos. 22 to 24, 2.50c.; Nos. 25 and 26, 2.60c.; No. 27, 2.70c., and No. 28, 2.80c.

Old Material.—The market is sluggish and somewhat disappointing to holders. Mills are well supplied with stock, and as some of them are embargoed there is no general disposition to buy new lots. At inside figures and in some cases a little better than that a few good sized lots have been taken, but it is an uncertain market, and has to be judged by such developments as are met with from day to day. Bids and offers for deliveries in buyers' yards are about as follows:

Scrap Steel Rails	$16.75 to $17.25
No. 1 Steel Scrap	16.50 to 17.00
Low Phosphorus Scrap	22.00 to 23.00
Old Steel Axles	19.50 to 20.50
Old Iron Axles	26.00 to 27.00
Old Iron Rails	22.00 to 23.00
Old Car Wheels	18.75 to 19.00
Choice Scrap, R. R. No. 1 Wrought	19.50 to 20.50
No. 1 Yard Scrap	17.50 to 18.50
Long and Short	16.50 to 17.50
Machinery Scrap	15.50 to 16.00
Wrought Iron Pipe	15.00 to 15.50
No. 1 Forge Fire Scrap	15.50 to 16.00
No. 2 Light Ordinary	11.00 to 11.50
Wrought Turnings	13.50 to 14.00
Axle Turnings, Choice Heavy	14.00 to 15.00
Cast Borings	10.00 to 10.50
Stove Plates	12.00 to 12.50
Grate Bars	12.00 to 12.50

Cleveland.

CLEVELAND, OHIO, February 20, 1906.

Iron Ore.—One possible chance for labor trouble on the lakes has been removed for this spring by the statement of the Licensed Tugmen that they have no intention of exacting conditions from the Great Lakes Towing Company which could not be granted. The tugmen say that neither the employees nor the company could afford to have a strike this spring. The other labor situations are as heretofore. That the masters and pilots will demand recognition of their union is considered assured. The uncertainties of the future have prevented any definite movement in the lake Ore situation. Shippers are not yet convinced that the Pig Iron trade is going to continue as brisk during the latter half of the year and the first of next as it has been. Vessel firms believe that if there are to be labor difficulties the chances are for better wild than contract rates. From Lake Erie docks shipments are beginning to be rather heavy and some sales are being made of Ore on the docks. The market is strong on the old basis of $4.25, base, for Old Range Bessemer Ore, f.o.b. Lake Erie docks.

Pig Iron.—The Pig Iron market has been stronger in the past week. The change is mostly sentimental, not having a foundation in actual sales as yet. Only one Foundry Iron furnace in this territory is out of blast. All the others are shipping heavily. In most instances stocks have been completely wiped out, and it is said that conditions are such that no one furnace could sell 500 tons for quick shipment. A representative of a large firm, just returned to the city after an extended trip, makes the statement that not only are furnace stock piles wiped out, but foundry yards are also bare. In the Malleable trade consumers are absolutely dependent upon the prompt shipment from furnaces. Prices have not changed materially nor has there been any better buying movement, although some consumers seem more interested in the market. The price generally named is still $17.50 at the furnace. The recent sale of Steel making Irons to the Steel Corporation has stiffened the market materially. Coke is stronger. Concessions which were made to get business have not been heard so much of here of late. The market is quite strong at $3 to $3.25 for 72-hour Foundry Coke and $2.35 to $2.50 at the oven for Furnace Coke.

Finished Iron and Steel.—The market continues to show evidences of unevenness, but generally with indications of greater strength. This is particularly true in this territory of the Structural situation, and a ready demand is found for the output of the new Structural mills now ready to market their product. Cleveland contractors have a number of big projects on hand, and are not desirous of repeating last year's struggle for material. Several new bridge projects have appeared during the past week, while the reconstruction of others will call for Shapes later in the year. This includes private enterprise, municipal work and railroad construction. Three or four big buildings have been projected, and the Steel is being bought for some that are at a more advanced stage. In addition the demand for new ships is said not to have been satisfied, and reports are current of several more orders to be placed in the near future. There has been an indication, however, that some buyers are not yet aware of the opportunities for getting material, since some business has been placed with Eastern mills for lots ranging from 200 to 500 tons at premiums more than $5 a ton above the agreed price. A better demand has appeared for Rails. One traction line has just closed a contract for enough Standard Rails to lay 40 miles of second track. Another traction company is figuring on Rails for 35 miles of track, and a third enterprise is about to be started which will require Rails for 16 miles of track. Two or three other projects are under way, but they have not reached the buying stage. The Billet market seems easier. Bessemer Billets are now sold on the basis of $25 a ton, Pittsburgh, while Open Hearth Billets are selling at $27 to $28 a ton, Pittsburgh. The Sheet market is stronger, as appears from the increased demands on jobbers. Most of the mills are well filled up. Jobbers' prices have held as follows, f.o.b. Cleveland: No. 10 Black, 2.15c.; No. 28 One Pass Cold Rolled, 2.70c.; No. 28 Galvanized, 3.70c. Bars continue easy, with a good demand, and mills able to make shipments within three weeks. Bar Iron is weaker, and mills are looking for business. The price holds at about 1.75c. to 1.80c., at the mills. The Plate trade shows a good demand from boiler makers and for construction work. Some of the Eastern mills continue to get prompt shipment orders at a premium of $2 to $4 a ton.

Old Material.—The market is still soft, due to the immense receipts and comparatively light buying. The following represent dealers' prices to the trade, f.o.b. Cleveland, gross tons: Old Steel Rails, $16.50 to $17.50; Old Iron Rails, $23 to $23.50; Iron Car Axles, $16.50 to $17.50; Heavy Melting Steel, $16 to $16.50. Net tons: Cast Borings, $8.50 to $9; No. 1 Busheling, $15; No. 1 Railroad Wrought, $17 to $18; Iron Car Axles, $22 to $23; No. 1 Cast, $15; Stove Plate, $11; Iron and Steel Turnings and Drillings, $11 to $12.

Pittsburgh.

PARK BUILDING, February 21, 1906.—(*By Telegraph.*)

Pig Iron.—The purchase of 16,000 tons of Bessemer Iron last week by the United States Steel Corporation for first quarter delivery has practically cleaned up the available supply for delivery prior to April 1. The Bessemer Pig Iron Association reports that its furnaces have only 6500 tons of unsold Bessemer for February and March shipment. A fair tonnage has been sold for second quarter, but a good quantity of Bessemer and Basic Iron is still available for that delivery. Inquiry for both Bessemer and Basic Iron is very dull and only a few small lots have been sold. Bessemer Iron is held at $17.50, Valley furnace, by the large interests, but some of the dealers have small lots which could probably be bought at $17.25. The furnaces report a firmer tone in Basic Iron and are holding it at $17, Valley furnace, but some of the dealers have a good deal of it, which they are offering at about $16.75. While the inquiry for Foundry Iron is light, consumers are specifying very freely on contracts, and it is believed that a buying movement will begin very early in March. Northern No. 2 Foundry is held at $17.25 to $17.50 at furnace, but for desirable tonnage small sellers would likely accept $17. A local consumer has bought a large tonnage of Southern Forge Iron for February and March delivery at a price said to be very close to $12, Birmingham, which is equal to $16.35, Pittsburgh, for the February Iron and $16.60 for the March Iron. Northern Forge is a little weaker and we note a sale of 1000 tons at $16.25, Valley furnace, or $17.10, Pittsburgh.

Steel.—The mills are still considerably behind in deliveries of Billets and Sheet and Tin Bars. Steel for prompt shipment continues scarce, especially Open Hearth. We quote Bessemer Billets at $27 to $27.50, and Open Hearth $28 to $29, Pittsburgh. Sheet and Tin Bars in random lengths are held at $27, delivered to mills in the Pittsburgh district, to which price actual freight to outside points of delivery is added. For Cut Bars an extra 50c. a ton is charged.

(*By Mail.*)

Generally speaking conditions in the whole Iron trade are quiet and the market is conspicuous by the lack of activity which characterized it for so long. This quiet condition is not due to any lack of faith in the future but largely to the fact that consumers are pretty well covered ahead and do not believe there is any incentive to make large contracts for forward delivery. At the same time it is a fact that consumers are specifying very freely on contracts for Pig Iron, Billets and Finished Iron and Steel, and the blast furnaces and mills are as busy as they have been at any time in the last six months. The amount of new business being placed in nearly all lines is relatively small, except in Steel Rails and Structural Steel, in which the tonnage is enormously heavy. On some lines prices are not as firm as they were, there being a disposition in some cases to shade prices to secure new orders. There is a fair amount of inquiry for Pig Iron, but it is mainly for small lots. Bessemer Iron is quoted by makers on the basis of $17.50 at Valley furnace, but some of the dealers who have picked up small lots in various ways claim they cannot get above $17.25 at Valley furnace for it. There is a little firmer feeling in Basic Iron and the furnaces are holding it at $17 at furnace, but a good deal is being offered by dealers at about $16.75 at furnace, with very little inquiry for it. Consumers are specifying very freely on contracts for Foundry Iron, but there is not much new inquiry. Northern brands of No. 2 Foundry are held at $17.25 to $17.50, Valley furnace, but on a firm offer some furnaces would likely accept $17. The Northern and Southern markets on Forge Iron are weaker and Northern Forge has sold in the last few days at $16.25, Valley furnace. There have also been some fairly heavy sales of Southern Forge at low prices, about $12, Birmingham, having been done in one or two cases. Steel continues very firm and there is still a shortage in supply. In Finished Iron and Steel the amount of new business being placed is smaller than for some time, with prices on several lines showing a weaker tendency. The Coke market is firmer, due to the probability of a Coal strike, which, however, will not affect the Connellsville region, as the miners and Coke workers there are not organized. The Scrap market is very dull and prices are weak.

Ferromanganese.—Sales of about 50 tons of foreign 80 per cent. for spot delivery are reported at about $150, delivered, Pittsburgh. For delivery in March and April from $110 to $125 is quoted, while for shipment over the last six months of the year about $85 to $90, Pittsburgh, is asked.

Muck Bar.—The market seems to be a shade easier and there is not much inquiry. We quote local grades of Muck Bar made from all Pig Iron at $31.50 to $32, Pittsburgh, but on a firm offer the lower price might be shaded.

Steel Rails.—A number of leading roads that placed their contracts last fall find they have not bought enough tonnage and are figuring on buying more. The Chesapeake & Ohio has bought 5000 tons, an Eastern road 15,000 tons and a Southern road 5000 tons. Local trolley lines have placed upward of 5000 tons and the demand from electric lines for Standard Rails has been a feature of the market for some time. Prices on Light Rails are firm and we quote: 8-lb., $36; 10-lb., $32; 12-lb., $30; 16-lb., $29; 20-lb., $28.50; 25 to 45 lb., $27.50 to $28, maker's mill.

Rods.—We note a continued scarcity in both Bessemer and Open Hearth Rods, and a small lot of Bessemer Rods for prompt delivery has been sold at $35, maker's mill. We quote Bessemer and Open Hearth Rods at $34 to $34.50 and Chain Rods at about $35, Pittsburgh.

Skelp.—Consumers are specifying very freely on contracts placed some time ago, and are still behind in deliveries. New tonnage is light, as consumers are pretty well covered ahead. Prices are firm and we quote: Grooved Steel Skelp, 1.57½c. to 1.60c.; Sheared Steel Skelp, 1.60 to 1.65c.; Grooved Iron Skelp, 1.70c. to 1.75c., and Sheared Iron Skelp, 1.80c. to 1.85c., Pittsburgh. These prices are for ordinary widths and gauges.

Structural Material.—Some heavy contracts have been placed and additional large tonnage is pending. The American Bridge Company has taken about 9000 tons of bridge work for the Clearfield and Franklin branch of the Lake Shore road. Some very heavy inquiries are in the market and some large tonnage will be closed between now and March 15. The leading Structural companies are filled up for balance of this year and the outlook could not be better. The mills are making quicker deliveries than for some time, partly due to the favorable weather, which is allowing them to get out maximum tonnage. We quote: Beams and Channels, up to 15-inch, 1.70c.; over 15-inch, 1.80c.; Angles, 3 x 2 x ¼ inch thick up to 6 x 6 inches, 1.75c.; 8 x 8 and 7 x 3½ inches, 1.80c.; Zees, 3-inch and larger, 1.70c.; Tees, 3-inch and larger, 1.75c. Under the Steel Bar card Angles, Channels and Tees under 3-inch are 1.60 base, for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

Plates.—Some heavy Plate tonnage for lake ore boats has been placed, much of it having been taken by the Carnegie Steel Company. Specifications on contracts are coming in fairly well, but the amount of new work being placed is lighter than for some time. Some of the smaller Plate mills, notably in the East, are capturing a good deal of the tonnage being placed by promising deliveries inside of two or three weeks. Prices are firm, and are being rigidly held, except on the very narrow sizes which are sometimes slightly shaded by outside mills. We quote: Tank Plates, ¼ inch thick, 6¼ up to 100 inches in width, 1.60c., base, at mills, Pittsburgh. Extras over the above prices are as follows:

	Extra per 100 pounds.
Gauges lighter than ¼-inch to and including 3-16-inch Plates on thin edge	$0.10
Gauges Nos. 7 and 8	.15
Gauge No. 9	.25
Plates over 100 to 110 inches	.05
Plates over 110 to 115 inches	.10
Plates over 115 to 120 inches	.15
Plates over 120 to 125 inches	.25
Plates over 125 to 130 inches	.50
Plates over 130 inches	1.00
All sketches (excepting straight taper Plates varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches)	.10
Complete Circles	.20
Boiler and Flange Steel Plates	.10
Marine, "A. B. M. A."	.40
Still Bottom Steel	.30
Locomotive Fire Box Steel	.50
Shell Grade of Steel is abandoned.	

TERMS.—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within ten days from date thereof, discount of ⅛ of 1 per cent. is allowable. Pacific Coast base, 1.60c., f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 inches wide down to 6 inches of Tank, Ship or Bridge quality.

Sheets.—The new business being placed is light, but consumers who made contracts some time ago when prices were lower are specifying very freely on these, and shipments from the mills are heavy. It is possible that for very desirable orders our prices might be shaded by some mills about $1 a ton. We quote: Black Sheets, Box Annealed, one pass through cold rolls, Nos. 10 to 12 gauge, 2c.; Nos. 13 and 14, 2.05c.; Nos. 15 and 16, 2.10c.; Nos. 17 to 21, 2.15c.; Nos. 22 to 24, 2.20c.; Nos. 25 and 26, 2.25c.; No. 27, 2.30c.; No. 28, 2.40c.; No. 29, 2.55c., and No. 30, 2.65c. Galvanized Sheets: Nos. 10 and 11, 2.35c.; Nos. 12 to 14, 2.45c.; Nos. 15 and 16, 2.55c.; Nos. 17 to 21, 2.70c.; Nos. 22 to 24, 2.85c.; Nos. 25 and 26, 3.05c.; No. 27, 3.25c.; No. 28, 3.45c.; No. 29, 3.70c., and No. 30, 3.95c. We quote No. 28 Gauge Painted Roofing Sheets at $1.65 per square and Galvanized Roofing Sheets, No. 28 gauge, at $3 per square for 2½-inch corrugations. Jobbers charge the usual advances over these prices for small lots.

Bars.—New orders in both Iron and Steel Bars are few, but specifications are coming in very freely and the mills are making heavy shipments, being still somewhat behind on

shipments. We quote Refined Iron Bars made from all Muck Bar stock at 2c., Pittsburgh, while Common Iron Bars, made partly from Scrap, are held at 1.85c., Pittsburgh, and this price might be shaded on a firm offer and for desirable specifications. We quote Steel Bars at 1.50c., base, half extras for carloads and larger lots.

Hoops and Bands.—A small tonnage in Hoops is being placed at the advanced price, but the large consumers, such as the coopers and others, are covered by contracts made some time ago when prices were lower and on which they are specifying very freely. We quote Steel Hoops at 1.85c. and Bands to be used for cooperage purposes at 1.85c., the latter carrying full Hoop and Band extras. Bands for other than cooperage purposes are 1.50c., base, half extras, as per Standard Steel card. Above prices are for carload lots, f.o.b. Pittsburgh, plus full tariff rail rate to point of delivery.

Tin Plate.—The amount of new business being placed in Tin Plate is light, but specifications on contracts are coming in very freely and shipments of Tin Plate by the mills are heavy. There is still a scarcity of Tin Bars and occasionally some of the mills are compelled to shut down for a day or two at a time, waiting for Bars to accumulate. We quote Tin Plate at $3.50 per base box, f.o.b. Pittsburgh, for 14 x 20 100-lb. Cokes, terms 30 days, less 2 per cent. off for cash in 10 days, on which price a rebate of 5c. a box is usually allowed for carloads and larger lots.

Merchant Steel.—While consumers are specifying very freely on contracts the mills are catching up on deliveries, due to the fact that a maximum tonnage is being turned out and also because of the very small amount of new business being placed. Prices are firmly held and are as follows: Planished or Smooth Finished Tire Steel, 1.70c.; Iron Finish up to 1½ x ½ inch, 1.65c., and Iron Finish, 1½ x ½ inch and larger, 1.50c., base, Pittsburgh, and Channels for solid rubber tire are quoted as follows: ¾, ⅞ and 1 inch, 2c., and 1⅛-inch and larger, 1.90c.; Toe Calk Steel, 2c. to 2.05c.; Railway Spring Steel, 1.65c. to 1.70c.; Cutter Shoes, 2.20c. to 2.25c.; Flat Sleigh Shoe, 1.50c. to 1.55c.; Crucible Tool Steel, 6c. to 8c. for ordinary grades and 12c. and upward for special grades.

Railroad Spikes.—The demand continues heavy, some large business being in the market, while prices are very firm. We quote $2 to $2.05 per 100 lbs., Pittsburgh.

Spelter.—The market continues very dull, there being practically no demand, and prices are weak. We quote prime grades of Western Spelter at 5.85c., St. Louis, equal to 5.97½c., Pittsburgh.

Merchant Pipe.—An inquiry for about 50 miles of small Line Pipe is said to be in the market, but we have been unable to locate the prospective buyer. The demand for Merchant sizes continues large, and the mills are pretty comfortably filled with business. Prices show no improvement, the extreme discount on Merchant sizes remaining at 81 per cent. off to the large trade, while on Iron Pipe prices quoted are from two to three points higher than on Steel. Official discounts are as follows:

Merchant Pipe.

	Jobbers, carloads.			
	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
	%	%	%	%
⅛ and ¼ inch	72	56	69	53
⅜ inch	74	60	71	57
½ inch	76	64	73	61
¾ to 6 inches	80	70	77½	67½
7 to 12 inches	75	60	72½	57
Extra strong, plain ends:				
⅛ to ⅜ inch	65	53	62	50
½ to 4 inches	72	60	69	57
4½ to 8 inches	68	56	65	53
Double extra strong, plain ends:				
½ to 8 inches	61	50	58	47

Discounts to consumers in small lots are one point higher than above.

Boiler Tubes.—The general demand is light, but specifications from the builders of large locomotives are coming in very freely. The American Locomotive Company and the Baldwin Locomotive Works are filled up with orders for locomotives for the balance of this year and are using a very large tonnage of Tubes. Prices are fairly strong, discounts being as follows:

Boiler Tubes.

	Iron.	Steel.
1 to 1½ inches	41	46
1¾ to 2¼ inches	41	58
2½ inches	46	60
2¾ to 5 inches	53	66
6 to 13 inches	41	58

Iron and Steel Scrap.—Prices continue to decline, and there is very little new demand. There seems to be a good deal of Scrap in the hands of dealers on which they are naming low prices in order to move it. Dealers quote about as follows per gross ton, f.o.b. Pittsburgh: Heavy Melting Scrap, $16 to $16.25; Cast Iron Borings, $10 to $10.25; Bundled Sheet Scrap, $14 to $14.25; No. 1 Wrought Scrap, $18 to $18.50; Old Steel Rails, short pieces, $16 to $16.25; long pieces for rerolling, $17 to $17.50; Machinery Cast Scrap, $15.50 to $15.75; Steel Turnings, $14 to $14.25. On a firm offer and on Scrap that the buyer would take in at once it is probable the above prices could be shaded from 25c. to 50c. a ton. Old Car Wheels are quite firm, and are held at $18.50 to $19. There is no market here for Old Iron Rails, but they are bringing about $20.50, delivered, in the Youngstown district.

Coke.—The prospective Coal strike, which is regarded by some as absolutely certain to take place, is responsible for a firmer market in Coke, and some sellers are asking higher prices. Strictly Connellsville Furnace Coke is now held at about $2.20 minimum, oven, with some sellers asking as high as $2.50 at oven. Connellsville 72-hour Foundry Coke is also firmer, being held at $2.75 to $3 a ton at oven. The new demand for Coke is only fairly heavy, most consumers being covered by contracts. The output of Coke in the Upper and Lower Connellsville regions last week was 380,598 tons, about the same as the previous week.

Cincinnati.

FIFTH AND MAIN STS., Feb. 21, 1906.—(*By Telegraph.*)

Pig Iron.—Market conditions in this territory during the most of the week have been decidedly quiet. The past two or three days, however, have developed a little more business for quick delivery, showing that consumption is not decreasing to any extent. Prices for both Northern and Southern Foundry grades are practically unchanged, and are apparently fairly well established. That there is some speculative Iron in the market is evidenced by the fact that about 1500 tons of warrant Iron, consisting of Southern Nos. 3 and 4, was reported sold to one of the Pipe companies on a $13.50, Birmingham, basis for No. 2. Gray Forge was sold into Pittsburgh territory last week at less than $12.50, rumor having it that the price paid was $12. There does not seem to be an abundance of these lower grades to be had, yet the supply probably exceeds the present demand. Locally, the trade is fairly well covered, with considerable business ahead. Looking at the situation from all sides, the present interim of quiet is not regarded as being of serious import, but is the natural result of consumers being well stocked and unwilling to contract far into the future under present conditions. This condition of affairs cannot in all likelihood continue for any great length of time, and it is thought the market will at once gain strength with the entrance of several of the larger consumers who must cover future requirements before the lapse of many weeks. Freight rates from Hanging Rock district to Cincinnati are $1.15, and from Birmingham $2.75 until February 28. We quote f.o.b. Cincinnati:

Southern Coke, No. 1	$17.25
Southern Coke, No. 2	16.75
Southern Coke, No. 3	16.25
Southern Coke, No. 4	15.75
Southern Coke, No. 1 Soft	17.25
Southern Coke, No. 2 Soft	16.75
Southern Coke, Gray Forge	15.00
Southern Coke, Mottled	14.75
Ohio Silvery, No. 1 (8 per cent. Silicon)	21.65
Lake Superior Coke, No. 1	19.15
Lake Superior Coke, No. 2	18.65
Lake Superior Coke, No. 3	18.15
Car Wheel Irons.	
Standard Southern Car Wheel	$22.75
Lake Superior Car Wheel	21.50

Coke.—This market is said to be rather firm, with considerably more inquiry for prompt shipments. Reports indicate that considerable delay has resulted in the Virginia districts owing to a shortage of cars. We quote the best foundry brands from Connellsville and Virginia districts from $2.90 to $3.25 f.o.b. ovens.

Finished Iron and Steel.—There is practically no change in the situation, the structural demand especially showing great strength. The past winter has been exceptional along this line, for the most part work having proceeded without the usual delays incident to the season. Prices are unchanged. We quote, f.o.b. Cincinnati: Iron Bars, in carload lots, 1.65c., with half extras; the same, in smaller lots, 1.90c., with full extras; Steel Bars, in carload lots, 1.63c., with half extras; the same, in small lots, 1.85c., with full extras; Base Angles 1.73c., in carload lots; Beams and Channels, in carload lots, 1.83c.; Plates, ¼-inch and heavier, 1.73c., in carload lots; in smaller lots, 1.90c.; Sheets, 16-gauge, in carload lots, 2.15c.; in smaller lots, 2.70c.; 14-gauge, in carload lots, 2.05c.; in smaller lots, 2.60c.; Steel Tire, ¾ x 3-16 and heavier, 1.83c., in carload lots.

Old Material.—The Scrap Iron market is rather quiet, and prices are a little lower. Dealers report no accumulations on yards, disposing of whatever tonnage is secured at once. The railroads have been offering considerable quantities, which have found a ready market. We quote dealers' prices, f.o.b. Cincinnati, as follows: No. 1 Railroad Wrought Scrap, $15 to $15.50 per net ton; Cast Borings, $8.50 to $9 per net ton; No. 1 Cast Scrap, $12 to $13 per net ton; Iron Rails, $22 to $22.50 per gross ton; Steel Rails, rolling mill lengths, $15 to $16 per gross ton; Relaying Rails, 56 lbs. and upward, $28 to $29 per gross ton; Iron Axles, $24 to $24.50 per net ton; Car Wheels, $18.50 to $19.50 per

gross ton; Low Phosphorus Scrap, $18 to $19 per gross ton.

Herbert F. Topp, who for a number of years was connected with the United States Steel Corporation in the controller's office, New York, has severed his connection with that company and has taken service with the Dayton Coal & Iron Company as sales agent. Mr. Topp will cover the territory formerly looked after by Samuel Whittaker, who now has charge of the Cincinnati office in place of Mr. Isaacson, retired.

Birmingham.

BIRMINGHAM, ALA., February 19, 1906.

Pig Iron.—So far as sales are concerned they have been practically *nil* this week, one large producer having booked only 50 tons. A few inquiries for spot Iron are reported, but as the furnaces have nothing to offer on these except a small tonnage of off grades it was impossible to do much business. So far as can be ascertained, the price of $14.50 for No. 2 Foundry is being pretty generally maintained among the larger producers, who argue that inasmuch as they have practically nothing to offer for shipment prior to July 1 it is not to their interest to seek business for third quarter delivery, as owing to unsettled conditions there is a possibility of higher prices. They also figure, though admitting that production will far exceed last year, that the consumption will in all probability increase more rapidly than production, which will at least guarantee prevailing prices. Shipments have been exceedingly heavy this week, taxing the capacity of the railroads to furnish equipment. As only ten days remain before the advance in freight rates there is a rush to get in transit all the Iron possible, and February will probably establish a new record for tonnage from this district.

Old Material.—Scrap has been very dull this week, most of the dealers quoting a decline of about $1 a ton. No new orders are reported all shipments being made on old contracts. Prices are approximately as follows per gross ton, f.o.b. cars here:

Old Iron Rails	$19.50 to $20.50
No. 1 Railroad Wrought	17.00 to 17.50
No. 2 Railroad Wrought	15.00 to 15.50
No. 1 Country Wrought	14.00 to 14.50
Wrought Pipe and Flues	12.00 to 12.50
Mixed Steel	11.00 to 11.50
Stove Plates and Light Cast	10.00 to 10.50

Cast Iron Pipe.—Perhaps more Pipe has been shipped out of this district within the past 30 days than ever before in a similar length of time. This is due partly to the fact that inasmuch as all Pipe is sold delivered the manufacturers have been making strenuous efforts to save additional freight by getting as much as possible in transit before March 1, after which time the rate advances 25c. per ton. Then, too, the winter has been a mild one and Pipe laying has not been interrupted to any great extent. Especially is this true of Cast Iron Soil Pipe, as building operations have continued right along and the foundries have been shipping their product as fast as it could be made. The ten foundries in Alabama, which probably supply one-third of the Sanitary Pipe in the United States, usually have large stocks at this season of the year, but a thorough canvass of the situation shows them now without any stock and with large orders for immediate shipment. Following are about the prevailing prices on Water Pipe per gross ton:

4 to 6 inch	$27.00
8 to 10 inch	26.00
12 to 20 inch	25.00
24 to 48 inch	24.00

Gas Pipe, $1 per ton extra.

The Steel main foundry building of the American Cast Iron Pipe Company, North Birmingham, was accepted this week from the structural contractor, Noelke Richards Iron Works, Indianapolis, Ind. The large plant, of which this is an important item, is now nearing completion in all departments, and the company expects in the very near future to enter the field as manufacturer and seller of Cast Iron Water and Gas Pipe. The estimated capacity of the foundry building just completed is 150 tons per day in sizes 4 to 30 inch.

The Catoctin Furnace Property Sold.—The large Catoctin Furnace property in Frederick County, Md., has just been purchased at bankrupt sale by Jos. E. Thropp of Bedford County, Pa., the owner and operator of the Earlston furnace. The purchase includes about 10,000 acres of land. Large deposits of brown hematite and magnetite are known to exist throughout the greater part of the property, and it is probable that the new owner will develop it on a comprehensive scale. His son, Joseph E. Thropp, Jr., will be a partner with him in the enterprise.

New York.

NEW YORK, February 21, 1906.

Pig Iron.—There is continued buying of fair amounts of Foundry Pig Iron for prompt and early delivery at the moment, but little inquiry for or interest in forward deliveries, for which the market is featureless. We continue to quote: Northern Iron, No. 1 Foundry, $18.50 to $19; No. 2 Foundry, $18 to $18.50; No. 2 Plain, $17.50 to $18. Southern Iron is quoted at $18.50 to $18.75 for No. 1 Foundry and at $18 to $18.25 for No. 2 Foundry.

Steel Rails.—While trunk line buying is largely over for this year, the volume of inquiry in the past ten days for the smaller steam roads, built and to be built, and for new trolley lines, has been greater than in any equal period. The difficulty is that on all this business deliveries are being asked for that the mills cannot make, and in a good many cases buyers, after trying to better the deliveries offered by going the rounds, have given their orders with the request that the best delivery possible be made. We note 12,000 to 15,000 tons of small order business closed in the week, coming from a variety of sources. Of round tonnages mention is made of 5000 tons additional for the Wabash, 3000 tons additional for the Las Vegas & Tonopah and 3600 tons for the Charleston & West Carolina. The New York Central specifications, to which some publicity has been given in the past week, were all included in the 150,000-ton total for Vanderbilt lines, already reported in this column.

Structural Steel.—Recent contracts in Structural lines have been chiefly for buildings, there being a lull meantime in the awarding of railroad bridge work. In the month of January the American Bridge Company's plants turned out 49,000 tons of fabricated Steel, which is a record so far, but is not likely to be for long, the company having a capacity, single turn, of about 55,000 tons, which is expected to be attained under full deliveries of material assorted to the sizes required for the work in hand. A contract placed in the past week called for 4500 tons of Steel for additions to the Homestead Works of the Carnegie Steel Company, this going to the American Bridge Company. The Brunswick Building, at Fifth avenue and Twenty-sixth street, New York, has been awarded to Post & McCord. About 5000 tons of material will be needed. The Astor Apartment House, at Seventy-eighth and Seventy-ninth streets and Broadway and West End Avenue, 7000 tons, is at last at the contract stage. The Humboldt Bank Building, at Los Angeles, Cal., 1700 tons, was taken by Milliken Brothers of New York. The Passaic Steel Company, Paterson, N. J., will furnish the Structural Steel frame work, amounting to about 1000 tons, for the new building at 718-720 Broadway, New York, for which Ranald H. McDonald & Co. are general contractors. For the Cook County Court House, at Chicago, W. R. Grace & Co. were the lowest bidders, but the Steel contract for 8000 tons has not been placed. Some inquiries on fabricated work for export have appeared, and one important contract has been closed, 15,000 tons of bridge work for Corea, taken by the United States Steel Corporation. Guatemala has several projects on foot that are being brought to the attention of construction contractors, but Central and Souh American business is generally slow in development. The condition of foreign Structural mills insures a firm market, both at home and abroad, on all forms of Steel erection for months to come. For mill shipments of Structural Steel, tidewater deliveries, the following quotations are made: Beams, Channels, Angles and Zees, 1.84½c.; Tees, 1.89½c.; Bulb, Angles and Deck Beams, 1.99½c. Beams, 18 to 24 inch, 0.10c. extra; Angles over 6 inches, 0.10c. extra. Out of stock Beams and Channels are sold at 2.50c.

Bars.—Trade is rather quiet and the premiums which for a long time have been so easily secured on both Iron and Steel Bars are disappearing. General specifications for Bar Iron are quoted at 1.79½c. to 1.89½c., tidewater, New York, but mills making a narrow range of sizes are taking attractive orders at lower prices. Steel Bars are quoted at 1.64½c. to 1.84½c., tidewater, according to delivery desired.

Plates.—Sales agents report a moderate run of orders for small lots, with no inquiries of a character to promise an early improvement in the demand. Specifications on contracts are coming in very freely, indicating that consumers are finding their work coming up to their expectations. Mills are making deliveries within two or three weeks after the receipt of new orders. Quotations are continued, as follows, at tidewater: Sheared Tank Plates, 1.74½c. to 1.84½c.; Flange Plates, 1.84½c. to 1.94½c.; Marine Plates, 2.14½c. to 2.24½c.; Fire Box Plates, 2.24½c. to 2.60c., according to specifications.

Cast Iron Pipe.—Orders for small lots are coming in unusually well for this month. The Eastern foundries are all very busy and manufacturers are as sanguine as ever that this year will prove to be a record breaker in the amount of tonnage turned out. Prices are firm at $29.75 per net ton for carload lots of 6-inch, at tidewater.

Old Material.—An improvement is noted in the general demand, but particularly in Heavy Cast Iron Scrap and

Stove Plate. Some good sales of Cast have been made and negotiations are pending for round lots. Some large tonnages are asked for on Steel Scrap and Old Steel Rails for March and April deliveries. It is believed that Western dealers who sold quite heavily for future delivery some time ago are meeting with difficulty in filling their requirements at prices which they hoped to reach. Efforts have been made to force local prices of Steel Scrap and Old Steel Rails lower, but the appearance on the scene of these buyers has caused holders to brace themselves against a further decline. Inquiries are being received for Wrought Pipe and Light Iron. Iron and Steel Car Axles are also in good request. Old Car Wheels, both steam and trolley, are in very good demand, inquiries being in hand for fair sized quantities. Approximate prices per gross ton, New York or vicinity, are as follows:

Old Iron Rails	$21.00 to $22.00
Relaying Rails	25.00 to 26.00
Old Steel Rails, rerolling lengths	16.50 to 17.00
Old Steel Rails, short pieces	15.50 to 16.00
Heavy Melting Steel Scrap	15.50 to 16.00
Standard Hammered Iron Car Axles	25.00 to 26.00
Old Steel Car Axles	20.00 to 21.00
No. 1 Railroad Wrought	19.50 to 20.50
Iron Track Scrap	17.50 to 18.50
No. 1 Yard Wrought, long	18.00 to 19.00
No. 1 Yard Wrought, short	16.00 to 17.00
Wrought Pipe	14.50 to 15.00
Light Iron	10.50 to 11.50
Cast Borings	9.00 to 9.50
Wrought Turnings	13.00 to 13.50
Old Car Wheels	18.00 to 19.00
No. 1 Machinery Cast	15.00 to 16.00
Stove Plate	12.00 to 12.50
Malleable Cast	16.50 to 17.00

Metal Market.

NEW YORK, February 21, 1906.

Pig Tin.—Dullness has characterized the market and prices have eased off slightly. On no day during the week could the inquiry be called good. The price on the 14th was 36.60c., declining to 36.20c. on the 16th, and on the 19th and 20th Tin was sold at 36.37½c. To-day's price is slightly lower at 36.35c. The price for futures in London has declined and now rules at £163 10s. The spot price is practically unchanged at £166. The arrivals so far this month aggregate 2823 tons. The afloats are 3500 tons. From this forecast it is probable that the total arrivals during the month of February will be 4000 tons. It is expected that the deliveries into consumption will not be over 3000 tons. This will leave an increase of stock in stores of at least 1000 tons. The statistical position of Tin is more favorable to the consumer than for some time past. The metal, however, is held in strong hands, which are amply able to protect the market against any sudden decline.

Copper.—There have been some inquiries for future shipments of Copper, but scarcely any of these have been turned into actual business. The larger consumers seem reluctant to make any commitments at the present level of prices. In spite of contrary reports Lake Copper has been sold during the week at 17.87½c. to 18c. and Electrolytic at prices netting the seller 17.80c. or thereabouts. We continue to quote the market purely nominal at 17.75c. to 18c. for Lake, 17.62½c. to 17.87½c. for Electrolytic, 17.50c. to 17.62½c. for Casting grades. European markets have declined slightly during the week and for standard warrants we quote £77 12s. 6d.; futures, £75 2s. 6d., and Best Selected brands, £83 15s. The exports so far this month have been good, aggregating 12,216 tons. The total consumption of Copper in Germany, as given by L. Vogelstein & Co., American representatives for Aron Hirsch & Sohn, Halberstadt, Germany, for 1905, is 96,808 tons, against 107,329 tons in 1904 and 78,793 tons in 1903.

Pig Lead.—The reduction of price made by the leading interest has apparently stimulated no buying, although inquiries have been more frequent. The American Smelting & Refining Company continues to quote shipment Lead in 50-ton lots at 5.35c. The spot Lead market in New York is quoted at 5.35c.; in St. Louis the market is dull, sellers asking 5.27½c. The London market is again lower at £16 5s.

Spelter.—This market is the dullest of all the Metal markets. There has been little or no new business for the past fortnight. Quotations are unchanged at 6c. to 6.10c. for spot, March and April shipments, New York delivery, and 5.90c., St. Louis. The London market is again lower at £25 17s. 6d.

Antimony.—The market is strong and there is very little metal in this country. We quote for Cookson's, 16c. to 17c.; Hallett's, 15c. to 16c.; other grades, 14.75c. to 15.50c.

Quicksilver.—The market is unchanged and for jobbing orders of 100 flasks of 75 lbs. $41 to $42 is quoted. In San Francisco $40 is asked for domestic orders and $39 for export. Rothschild's quotation in London is unchanged at £7 7s. 6d.

Nickel.—The market is quiet and nominally unchanged. Large lots are quoted at 40c. to 45c. per lb.; smaller quantities, 45c. to 55c. per lb.

Aluminum.—The market is fairly active, but the producers are still behind in the matter of deliveries. For No. 1 Ingots 35c. per lb. is asked in ton lots; No. 2, 33c. per lb.

Tin Plate.—The leading interest, as well as others, continues to be somewhat behind hand in the matter of filling orders. New business is dull, but specifications on old contracts are coming in freely. Prices are unchanged at $3.50, f.o.b. Pittsburgh, and $3.69, f.o.b. New York, for 100-lb. IC Coke Plates. In Swansea, Welsh Plates are 1½d. lower, at 12s. 9d.

Old Metals.—The demand is very dull, and there is said to be some shading of prices. We quote dealers' selling prices as follows:

	Cents.
Copper, Heavy Cut and Crucible	17.25 to 17.50
Copper, Heavy and Wire	16.75 to 17.25
Copper, Light and Bottoms	15.25 to 15.75
Brass, Heavy	11.75 to 12.00
Brass, Light	10.00 to 10.25
Heavy Machinery Composition	15.25 to 15.50
Clean Brass Turnings	10.25 to 10.50
Composition Turnings	13.00 to 13.25
Lead, Heavy	5.00 to 5.15
Tea Lead	4.85 to 4.90
Zinc Scrap	4.90 to 5.10

Phelps, Dodge & Co., 99 John street, New York, who have for many years been prominent in the general Metal line, handling Tin Plates, Sheets, Brass and Copper Goods, &c., announce that owing to the great increase of their Copper and railroad business in the West they have been obliged to give up the selling of all Metals except Ingot Copper, which will be sold for shipment from the smelting works.

Iron and Industrial Stocks.

NEW YORK, February 21, 1906.

The stock market suffered considerable depression for several days following our last report, but the iron and industrial stocks reached the extreme of the downward swing either on Saturday or Monday. The lowest prices then realized on the active stocks were as follows: Can preferred 66½; Car & Foundry common 42¾, preferred 100½; Locomotive common 70¼; Steel Foundries preferred 47⅛; Cambria Steel 35½; Colorado Fuel 60; Pressed Steel common 58¼; Railway Spring common 55¾; Republic common 31⅝, preferred 105; Sloss-Sheffield common 82½; Tennessee Coal 152; United States Cast Iron Pipe common 45½; United States Steel common 40¼, preferred 105½. An improvement set in on Monday, which was continued Tuesday, and some stocks showed quite a decided recovery, Colorado Fuel rising to 66½, Locomotive common to 74⅜, Tennessee Coal to 156½, Sloss-Sheffield common to 85½, United States Cast Iron Pipe common to 48½, United States Steel common to 42¾ and the preferred to 107½. On Wednesday, however, some recession occurred. Last transactions up to 1.30 p.m. to-day are reported at the following prices: Can common 10, preferred 67½; Car & Foundry common 43, preferred 102¼; Locomotive common 72, preferred 116; Steel Foundries common 12, preferred 48; Colorado Fuel 62⅞; Pressed Steel common 58¾, preferred 101; Railway Spring common 57½; Republic common 32¼, preferred 105; Sloss-Sheffield common 83¾; Tennessee Coal 152½; United States Cast Iron Pipe common 47, preferred 93; United States Steel common 41¼, preferred 106½.

The stockholders of the Westinghouse Electric & Mfg. Company, Pittsburgh, have subscribed for $7,109,800 of the $15,000,000 bonds recently issued. The underwriting syndicate will therefore get $7,890,200.

The net earnings of the Crucible Steel Company of America for five months ending January 31 are given as $1,250,000. Earnings in January are said to have been $315,000, the largest amount earned by the company in any one month in its history.

Dividends.—The National Lead Company has declared the regular quarterly dividend of 1¾ per cent. on the preferred stock, payable March 15.

The Chicago local Structural Iron Workers' Union at a meeting held February 20 voted to extend the strike against the American Bridge Company on the building projects where material fabricated by the company is used. This strike has already tied up work on the South Side Elevated extension.

The Norfolk & Western Railroad has placed an order with the South Baltimore Car & Foundry Company, Baltimore, Md., for 2500 gondola cars.

The Western Electric Company, Chicago, has let contracts for an additional building requiring 2500 tons of structural steel shapes.

The Machinery Trade.

NEW YORK, February 21, 1906.

The machine tool trade has been exceptionally good the past week or two as a result of the heavy buying by the railroads and steel car and locomotive builders. The large number of orders placed by the various companies have individually covered only small lots, but together they aggregate a large amount. Both the American Locomotive Company and Baldwin Locomotive Works have made substantial purchases, and the Brooklyn Rapid Transit Company has placed orders for additional tools for its Kent avenue station.

The number of large power projects which have come before the trade of late, as well as the many schemes for new electric roads and electric railroad extensions, has in addition to benefiting trade in electric equipment, given the boiler trade especially a substantial boom. Boiler manufacturers have never been as busy as they are just now, and while the competition is keen good prices prevail, and even the smaller companies are doing well in the way of profit making. About every kind of a construction proposition that comes along gives promise of some trade to the boiler industry, and while it is generally understood that when construction business is good the boiler trade thrives, the unusual number of big schemes for developing power which are being carried forward and being promoted has given the trade a good line of solid business, as well as the promise of good business for some time to come.

It is highly probable that the United States and Germany will come to an understanding over the question of a reciprocal tariff, whereby the high tariff on machinery and other products of this country which Germany intended to inaugurate on March 1 will be at least held off for 18 months longer. If this is brought about the added time will be a boon for many American manufacturers who have been unable to fill hurried orders from German houses, given with a view to providing their machinery needs before the added tax might go into effect. It is thought that concessions will be made by this country and that the German Government will have a majority over the opposition in its efforts to give the United States reciprocal tariff treaty rates for 18 months in order to see if this country will not agree to a new commercial treaty. The machinery dealers on this side who have been unable to ship goods ordered to escape the added tariff in time are now resting on their oars and awaiting the outcome of the negotiations between Washington and Berlin. If the time is extended by Germany it will mean much to manufacturers and dealers here, and those who have placed the orders will be equally benefited. Machinery men who are interested in the German trade will watch developments in the situation closely.

Association Notes.

Action was taken on several topics of general interest to the trade at the convention of the National Supply and Machinery Dealers' Association, held at Fortress Monroe last week. A complete report of the meeting is printed on page 672 of this issue. The matter of greatest interest was the hearty endorsement and general adoption of the idea to have manufacturers adopt resale prices. This movement has already gained considerable impetus in the supply trade, and besides being expected to ultimately cover all important branches of the supply business is also calculated to affect machine tools on outlying territories or districts away from the principal centers which are covered by exclusive agencies. The movement to again bring before the attention of the Machine Tool Builders' Association the agreement which it tabled last December is also of importance, as it shows the determined effort of the dealers to bring about an increase in their commissions and better conditions generally. The agreement as it will be again presented to the machine tool builders is slightly modified, the commission being calculated from the selling price, instead of from the cost price. This is a slight concession to the manufacturer and is more in keeping with the usual way of figuring commissions.

The adoption of a standard size of pocket price books is also of interest to the trade.

The Southern Supply and Machinery Dealers' Association and the American Supply and Manufacturers' Association will hold their annual meetings at St. Louis on March 14, 15 and 16 next. The Southern Hotel has been selected as headquarters for the joint convention, which, by the way, will be the first concerted meeting of the two organizations, and the second meeting of the American Supply and Manufacturers' Association, which was organized, it will be remembered, at the annual meeting of the Southern Association held last year at Savannah. Special rates have been made by the hotel management for the benefit of the associations, and it is expected that there will be a large representation of members. Arrangements have also been made by Thomas G. Hyman, chairman of th Transportation Committee, for a one and one-third railroad fare for the round trip. An excellent feature of the meeting will be the arrangements by which members can identify each other. Badges are being prepared on which will be displayed the name of the wearer and the address of the company represented. This will not only facilitate the deliberations of the organizations, but will have a decided effect on the social aspect of the meeting, inasmuch as members can easily ascertain the identity of those not known to them personally. The arrangements for the business sessions of the association have not been completed as yet, except that the two organizations will hold separate sessions and one or more joint meetings. The joint sessions will be interesting, as it will be the first time that the members of the two associations will be offered an opportunity to discuss at length subjects of mutual interest to manufacturers and dealers, and it is expected that more than one point that the dealers and manufacturers have been somewhat at variance on will be decided to their mutual satisfaction. The meetings of the manufacturers, it is understood, will be given over more to discussions than to readings of lengthy papers. The dealers' meetings will be brightened by general discussions, and, as usual, there will be papers by members of the organization.

Important Machinery Requirements.

The Pennsylvania Railroad Company is making inquiries through the purchasing agent for a 300-ton 50-inch wheel press, 10-inch ram, to be driven by a direct connected motor; an automatic machine with special magazine and fixtures for pipe nipples and studs which will feed stock 2 inches in diameter or smaller, strong enough to thread to 1⅛ inches diameter, to feed stock 12½ inches long and magazine stock 8 inches long; a 5¼ x 1¾ x 5 inch hydraulic pressure pump to deliver a pressure of 700 pounds; a three-spindle 2½-inch bolt cutter, with dies ranging in size from ½ up to 2½ inches, inclusive, the machine to be belt driven; a 100,000-pound capacity elliptic spring testing machine, without vibrating lever and weights, also with lever and weights. This is all for which the railroad is in the market now. Large quantities of track material continue to be hurried forward to lay the 1906 allotment of rail, which is being rapidly distributed. The electrification of the West Jersey & Seashore Railroad has necessitated the purchase of additional quantities of track material, and as it is all wanted at the earliest possible moment the question of delivery becomes an important one.

The Erie Railroad Company has its plans well under way for the large terminal to be erected at Jersey City, and it is thought that about March 15 details can be gotten as to the dimensions of the various structures. F. L. Stuart, chief engineer, is in charge and a corps of men are at work on the plans. As was announced some time ago, the difficulties which arose with the authorities of Jersey City after the purchase of the company's additional property there have been settled and it is thought it will not be long before actual work on the proposed terminal will be started. It is understood that in addition to erecting a new large terminal proper the company will build a machine shop, a repair shop, a power house and other buildings. Officials of the road are not prepared to announce as yet just when the various structures will be begun, but it is thought that the coming spring will witness the beginning of the construction work, as preliminary operations in the way of arranging track details have been begun. While the machinery now in the temporary plant erected a short time ago at that point will be used in the new structures, that will by no means be adequate for the purposes of the company, according to those who are familiar with the details. It is understood that the company will make the shop at Jersey City the principal repair plant in that section and consequently the buying, which will undoubtedly be done in the New York market, will be quite heavy.

The Kansas City Southern Railroad contemplates building new shops at Port Arthur, Texas, the plans for which have not yet been prepared.

Extensive improvements are to be made to the plant of the Frick Company, Waynesboro, Pa., manufacturer of machinery. A new boiler shop, approximately 100 x 250 feet, is to be erected, which will be equipped with the latest improved machinery. The present boiler shop is to be used as an annex to the machine shop, and about 1500 to 2000 feet of new siding is to be put in. Other building will be done at the plant during the year which will probably necessitate the installation of considerable new machinery. The company has recently ordered a 15-ton locomotive traveling crane, which will be delivered about April 1, and for its new boiler shop it will soon purchase another 15-ton electric traveling crane.

The Krom Machine Works, 170 Broadway, New York, has plans in preparation for a machine shop to be erected in

connection with the company's plant at Plainfield, N. J. The company some time ago moved its shops to that city from Elizabeth in order to get more manufacturing space. At that time a plant already built was taken by the company, and since then it has been found that even with the added space additional manufacturing facilities are needed. The new machine shop will be about 100 x 200 feet. The plans have not been entirely completed as yet, and it is understood that no machinery equipment has been purchased. The details are being attended to at the New York office.

The Pennsylvania Salt Mfg. Company, Philadelphia, Pa., intends to make extensive improvements to its plant at Wyandotte, Mich., for which considerable equipment will probably be required.

The Union Boiler Company, Pennington, N. J., with offices at 110 Beekman street, New York, is in the market for some special machinery to be added to its plant.

The Standard Oil Company, 26 Broadway, New York, has plans under way for additions to its property at Bayonne, N. J., and it is thought that the company will come into the market very shortly for considerable power equipment as well as other machinery. It is understood that the addition is in the way of a refinery and the structural steel has already been purchased, while machinery equipment, it is said, is now under consideration.

The Dunn Realty & Improvement Company, Waycross, Ga., is in the market for all kinds of improved steam machinery for loading, making and grading purposes. The company will purchase machinery as soon as it can get a comprehensive list of bids.

The United Fruit Company, which made extensive purchases of machinery for Cuba last summer, where the company installed a number of sugar plants, is now preparing to go ahead with the machinery equipment for the large refinery in course of construction at Nipa Bay, Cuba. This plant is to be one of the largest, if not the largest, of its kind on that island, and it is expected that it will be put in operation during the coming summer. The machinery details are in the hands of Hugh Kelly of 81 Wall street, New York. Mr. Kelly has been representing the United Fruit Company as purchasing agent for some time past and in consequence he has placed considerable business with New York machinery men. As a matter of fact a large part of the United Fruit Company's buying was done abroad until recently. This is the company that Sir William Van Horne and other English capitalists are interested in, and until Mr. Kelly was commissioned to make purchases for the concern the major part of the buying was placed in the hands of foreign engineers. American machinery men have pushed their claims for Cuban trade, with the result that houses buying for that island have shown a tendency to give them business which formerly went to foreign competitors. The plant at Nipa Bay will be capable of handling 5000 tons of cane a day. The Baltimore Bridge Company has the contract for erecting the building, which will contain about 2300 tons of steel, and the price to be paid for constructing the plant, it is said, reaches well up into six figures. In addition to power machinery the company will probably require crushers and other machinery used in the refining of sugar. The United Fruit Company has a number of projects on hand for extending its Cuban holdings, it is said, and it is probable that before long additional refineries will have to be erected to take care of the output of the large plantations which the company has been establishing for several seasons past.

Tunnel and Power Work.

The contracts to be let for the construction of the Detroit River tunnel which are most interesting to the machinery trade will be those for the equipment of the power station and for other mechanical appliances necessary for electrifying the part of the road that will be operated adjacent to and through the tunnel sections. Plans have been completed for the equipment, and within the next week or so bids will be requested by the engineers for the installation of the power plant. As the electric zone is to cover about 4½ miles the power plant will necessarily be a large one. Bids are now being received by the Detroit River Tunnel Company for the construction of the tunnel, which is to extend from Detroit, Mich., to Windsor, Ont., the total length of the tunnel between approaches being 7860 feet. It will consist of two parallel tubes, each carrying a single track. In requesting bids the company has asked contractors to make suggestions, which in their judgment would be an improvement over the plans recommended by the Advisory Committee of Engineers, consisting of W. J. Wilgus of the New York Central Railroad, Howard Carson of Boston and W. G. Kinnear, chief engineer of the Michigan Central Railroad Company. The method of the construction of the tunnel has not yet been decided upon, and it has not yet been settled of what material the tunnel will be constructed, but the present plans favor reinforced concrete or cast iron segments, similar to the Pennsylvania tunnels under the North and East rivers. The engineers seem to favor the tunnel constructed of reinforced concrete, and if that material is found feasible it is probable that it will be followed. In either case there will be considerable machinery used by the contractor in constructing the tunnel, which is to be used by the Michigan Central Railroad, whose trains are now ferried across the river.

The New York, Westchester & Boston Railway Company, 30 Broad street, New York, will shortly be in a position to receive bids on turbine generating sets for its new power house, to be built in connection with the Westchester County system, which is now being built. W. A. Pratt, chief engineer of the company, has charge of preparing the specifications and selecting the machinery. The company proposes to install machinery to generate about 15,000 kw. of power. It is thought that at the same time the power equipment is purchased the equipment for three transformer stations will also be bought. The exact size of the power station has not been decided upon as yet, nor has the company arranged its plans for its proposed machine shop. There has been some delay in preparing the plans for these structures, as it was thought at first that they would be ready by spring. The engineer in charge now thinks it will be well along into summer before the plans are ready. The question of equipment for the machine shop and repair shop will not be taken up as yet, and it is thought that most of the road will be built before that is gone into. The company is constructing a four-track third-rail electric railroad through various municipalities in Westchester County to connect with the subway system in New York. The City & County Contract Company has the contract for building the road and is subletting contracts for 16 steel bridges to be built in the Bronx between West Farms and the northwest boundary of the city. It is understood that all of the machinery and power equipment will be arranged for at 30 Broad street, where Mr. Pratt has his office.

The American Rio Grande Land & Irrigation Company, Harlingen, Texas, will receive bids until March 1 for the complete equipment for its 1000 horse-power pumping plant to be installed near Harlingen. Chester M. Davis is engineer.

The Potomac Electric Power Company, Washington, D. C., has contracted with J. G. White & Co., New York, for the erection and equipment of a new power house for both lighting and power purposes in Washington. This company is one of the subcompanies of the Washington Railway & Electric Company, which divides with the Capital Traction Company the control of the electric traction business of the city. At the present time it operates a total of 650 cars over about 150 miles of track, while the mileage of the Capital Traction Company is between 40 and 50 miles. The power house constitutes an important feature of the general plan for expansion and development adopted by the company some time ago and will cost ultimately in the neighborhood of $1,500,000. The building is to be approximately 166 x 183 feet and will have a steel frame with curtain walls, which will probably be constructed of molded concrete blocks. The boiler room will contain four rows of boilers with three chimneys, located between the second and third rows. The turbine room will be at right angles to the firing room. The first installation will consist of two 2000-kw. and one 5000-kw. Curtis turbines, with boilers and superheaters, and the building is designed for a future installation of two additional 5000-kw. Curtis turbines with their steam generators, making a power house of 19,000-kw. ultimate capacity. There will be galleries around all the units, connected by short bridges, to permit of easy communication, making in effect a secondary operating floor in the turbine room. Two of the 2000-kw. units are already installed, one of them being equipped with an ordinary type of surface condenser. All of the remaining units, however, will have the latest type condensers, self-contained in the base of the turbines. The boilers will be fed by mechanical stokers, supplied from the overhead bunkers, and will carry 175 pounds steam pressure. All of the auxiliary machinery, with the possible exception of the coal handling apparatus, will be steam driven and all these prime movers will exhaust into feed water heaters. The number of exciting units has not as yet been determined, but there will probably be two or three in the first installation. In any case a booster battery will be installed with the plant, capable of performing alone the excitation function for the whole generator equipment for the period of an hour. This is one very good insurance against the possibility of interruption of service by breakdown.

Business Changes.

H. F. Frevert, Engineering Building, New York, who is well known in the machinery trade, both in the East and West, has leased a showroom on the ground floor of the building at 18 Dey street, which he will occupy on March 1 and where he will carry a full line of new and second-hand machinery.

The Miller-Collins Company, contracting engineer, has moved its offices from 1133 Broadway to the Columbia Building, 29 Broadway, New York.

Catalogues Wanted.—J. B. Wise, manufacturer of plumbing goods, Watertown, N. Y., desires catalogues of all kinds of iron working machinery and tools.

Philadelphia Machinery Market.

PHILADELPHIA, PA., February 20, 1906.

Inquiries continue to be received in good quantity in the local machinery market, but the tendency to close promptly is not so apparent. New business is on the whole rather dull and orders of any size continue noticeable in their absence. The possibility of a strike in the coal region has no doubt restricted business, not only in those territories—which are important ones in this market—but in the local market also. Every one appears to be in the dark as to the outcome of the negotiations between the representatives of the miners and operators. The determined stand taken by both sides would indicate on the surface that a strike was certain. The general belief, however, is that every effort will be made to reach a satisfactory agreement, but neither side now appears willing to make any concession. The uncertainty of this condition has no doubt influenced the trade to a considerable extent. Manufacturers in many lines are taking the precaution to stock up heavily on raw materials, so as to be prepared for the difficulty should it arise.

The demand during the past week has been largely for single tools of the medium sizes. An occasional order for the larger types of tools is to be noted, but new business on the whole would bear improvement.

Manufacturers continue as busy as ever, and orders already on their books are more than sufficient to keep the greater number of them fully occupied for months ahead. This is particularly so on the part of the builders of the larger machine tools, locomotives, cranes and the heavier type of special machinery. The manufacturers of the smaller general and special tools are as a rule as fully occupied proportionately.

Deliveries on all classes of tools remain practically the same. Prospective buyers would no doubt make their purchases promptly if they could obtain reasonable delivery of tools, but with mary manufacturers definite dates of delivery are somewhat uncertain and have frequently overrun specified times to a considerable extent. There is a hesitancy, therefore, on the part of some builders of tools to make any actual statement as to when deliveries on certain tools and sizes can be expected.

There is a better demand for second-hand machine tools. Owing to the indefinite dates of deliveries for new tools prospective purchasers have found it necessary to purchase second-hand tools, on which almost immediate delivery could be had, to temporarily, at least, meet their needs. Nearly all classes of good second-hand tools have been inquired for and some good sales have been announced.

The foundries, both iron and steel, are very busy. The tonnage of work offered is large and were it not that some of the local gray iron foundries were still affected in a degree by labor difficulties the trade could be said to be more active than at any time in its history. The labor situation, however, is constantly improving and a large tonnage of gray iron work is being turned out. Steel casting plants are having more business offered than they can conveniently handle, and in instances prompt deliveries are hard to obtain.

The United States Engineers' Office, Witherspoon Building, Philadelphia, will accept proposals until March 15, 1906, for the construction of rehandling machines for dredged materials, information regarding which may be had on application to J. C. Sanford, Major, Engineer, at the above address.

The Victor Talking Machine Company, Camden, N. J., has placed a contract for the erection of an addition to its factory. This building, which is to be one story high, 40 x 88 feet, ground plan, is to form a part of a future six-story building and is to be of reinforced concrete and fireproof throughout. Machinery consisting of a 300 horse-power Corliss engine, pumps and air compressors, &c., has already been contracted for and will be installed as soon as the building is completed. A 16-inch suction water main will also be run from the plant to the Delaware River, from which the future water supply will be obtained.

The Betts Machine Company, Wilmington, Del., notes an extremely heavy demand for boring mills, particularly those of the larger types, as well as for its general line of machine tools. Inquiries continue very satisfactory and the outlook for a continuation of the present active conditions is considered favorable. Recent deliveries by the company include two motor driven tire mills for the Schoen Steel Wheel Company, McKees Rocks, Pa. An 8-foot boring mill has been furnished the Union Pacific Railroad for its Omaha, Neb., shops, while one of the same size has been shipped the Chicago, Burlington & Quincy Railroad for its West Burlington, Iowa, shops, and another of like size has been delivered the Isthmian Canal Commission, Colon, Panama.

The Nazel Engineering & Machine Works is quite busy on a variety of general and special tools. A good demand for all classes of machinery continues, and recent deliveries include a number of file cutting, grinding, forming and shouldering machines for the Carver File Works of this city. A large centering machine, taking in stock 14 inches square by 8 feet in length, has also been furnished the Pennsylvania Railroad for its Altoona, Pa., shops.

The Philadelphia Roll & Machine Company is running its plant over time in order to keep up with the demand for rolls and for special charcoal iron castings. Orders for a large number of both chilled and sand cast rolls, varying from 6 to 15 tons each, have been booked, as have also orders for rubber mill machinery and rubber making rolls. All departments of its plant are busy, and in addition to the shipments of rolls to the various steel and iron plants, extensive deliveries of charcoal iron hammer blocks and dies have recently been made.

The Energy Elevator Company notes a considerable increase in the demand for elevators from local as well as out of the city concerns. Carriage lifts have been in particularly good demand, as have also the various types of freight elevators. Orders for several electric and power freight elevators have been booked for local delivery and also for Chester, Pa., parties. Carriage elevators have been furnished customers in Big Spring, Texas; Elliston, Ind., and other cities. A combined power and hand elevator has been shipped to Manzanola, Cal., while freight elevators of the standard type have been shipped to purchasers in East Hartford, Conn.; Aiken, S. C.; Winchester, Tenn.; Centreville, Mich., and other points.

New England Machinery Market.

WORCESTER, MASS., February 20, 1906.

The effect of the promised German tariff to be imposed against American products has been materially felt in New England, very large orders having been placed for delivery in Germany before March 1, the date when present tariff relations have been presumed to come to an end. Cable advices as printed in the daily press would seem to indicate that the German Government may postpone the beginning of the operation of the tariff that the American Government may have full opportunity to enter into reciprocal tariff relations with Germany, this postponement, according to the bill now before the Reichstag, being until June 30, 1907. Strong industrial interests are back of the bill, as denoted by the action of various manufacturing and commercial associations of Germany. The burden of the tariff would fall worst on the American builders of heavy machinery because the duty is by weight, though it is not uniform in this respect, lighter products paying a higher percentage than heavier lines, a sliding scale governing the schedules. The burden falls on the heavy machinery manufacturers for another reason, the cost of boxing being so great that prices have always been high for these American tools in the German market. One manufacturer states that the cost of preparing one of his heavy tools for shipment reaches 5 per cent. of the cost, and his is a costly machine. In the many instances American tools are protected by German patents, which should preclude their manufacture in that country. There is already talk of German machine tool builders purchasing rights to manufacture American tools, and certain American manufacturers feel that some such arrangement would be more profitable than attempts at shipment of machinery from this country, with the added cost of the tariff. Under present conditions the falling off of business resulting from large orders placed in anticipation of the tariff will be felt generally as a relief, because machine tool manufacturers are swamped with domestic business. The loss may come later if the tariff goes into effect when the American demand falls off, but on the whole little expression of annoyance is heard.

An interesting instance of the change in relative demand from foreign and domestic customers is afforded by the experience of the Norton Grinding Company, Worcester, Mass., manufacturer of heavy cylindrical grinding machinery. In 1904 about two-thirds of the company's business was on foreign orders. In 1905 a little more than one-half of the 100 heavy machines manufactured went abroad. This year something more than one-half of the business booked is domestic, with a greatly increased product, the rate of production having been more than doubled since the large shop extension was completed and equipped. The company is about to install a 30-foot Pond planer, 36 inches square, furnished by the Niles-Bement-Pond Company. The company has also ordered one of the new planers of the Chandler Planer Company, Ayer, Mass., 6 feet by 24 inches square.

The National Machine Tool Builders' Association is having a puzzling time of it fixing a date for the semi-annual convention to be held this spring at Atlantic City. As was stated last week, the dates of April 9 and 16 proved out of the question because of lack of hotel accommodations. Then April 2 was proposed, and now the first week of May is under consideration as an alternative date, or, to be more exact, Monday, April 30, and May 1. President E. M. Woodward and Secretary P. E. Montanus are doing everything

possible to expedite settlement of a question which is of a good deal of importance to many members of the association who are planning to attend the convention, and to combine with the business of the association the pleasures of a sojourn at the famous watering place.

The Pratt & Whitney Company, Hartford, Conn., manufacturer of machine tools and machinists' tools, is about to let the contract for the large machine shop which has been referred to in a general way in this column. The building will be 180 x 256 feet and five stories, with steel frame, brick walls and expanded metal-concrete floors, faced with maple. On one side will be a one-story lean-to 32 x 112 feet, and the entire building will give 125,000 square feet of floor space. It will be used entirely as a machine shop, with the exception of a part of the second floor, which is needed for office purposes. Two floors will have traveling cranes and there will be two elevators, one of 5 tons, the other of 3 tons capacity. Electric power will be provided. Another important improvement will be a new power plant, consisting of boiler house and engine room, located between the new foundry and the railroad tracks. The building will contain, besides engine and boilers, electric generating equipment and air compressors, the latter being an important adjunct to the power of this establishment, where compressed air is made a comprehensive factor in the work. The new foundry, now in process of erection, will be 116 x 210 feet, with a second story on one side 32 x 210 feet for charging purposes and for the storage of sand and coke. There will be a complete equipment of hoisting appliances. When these improvements are completed the capacity of the Pratt & Whitney works will be very greatly increased.

The business of the Rawson & Morrison Mfg. Company, Cambridge, Mass., has been consolidated with the Mead-Morrison Mfg. Company, Cambridge, with which it has been very closely allied for several years. The Rawson & Morrison Company manufactures hoisting engines, and the Mead-Morrison Company will continue to manufacture this line in addition to its machinery for handling coal and other bulky materials, including derrick swingers, electric hoists, belt hoists, suspension cableways and cable roads. The name of the Rawson & Morrison Mfg. Company, which is an old one, will go out of existence. The men who have made the company's business successful will remain with the Mead-Morrison Company. The company has orders on hand aggregating $1,000,000. The officers of the company are: President, Eugene N. Foss, head of the B. F. Sturtevant Company; vice-president, William J. Selleck; treasurer, John G. Morrison; general manager, Willard S. Martin; New York manager, Orton G. Dale; manager of engine department, Gust. Pers. Wern; chief engineer, Almon E. Norris; superintendent, Frederick W. Scott; directors: Eugene N. Foss, Boston; John G. Morrison, Cambridge; Willard S. Martin, Cambridge; Arthur P. French, Boston; Benjamin D. Brown, New York; William J. Hoyt, Manchester, N. H. The company has increased its capital stock to $1,000,000.

The Warren Steam Pump Company, Warren, Mass., manufacturer of steam and power pumping machinery, is so rushed with orders that it is necessary to operate the works nights. Orders in hand include five large condensers for the Russian Navy, which are to go into the equipment of ships to replace those lost in the war with Japan; 23 equipments for large steamers for the Great Lakes; pumps for the new Floating Hospital, Boston; equipment for a new steamer for the Eastern Steam Boat Company, which is to run on the Kennebec River; for the palatial steamer South Shore of the Boston & Nantasket Steam Boat Company and for numerous smaller craft. The company has orders for condensers to take care of the exhaust steam of engines of 12,000 horse-power at Fall River, Mass., and for a large sewage pump for the town of Swampscott, Mass.

The Heald Machine Company, Worcester, manufacturer of grinding machinery, has sold to the Diamond Machine Company, Providence, R. I., its line of center grinders and that of grinding attachments for use in lathes. The tools comprise a small portion of the business of the Heald Company, which is rushed with orders.

The Boston Machine Works, 13 Willow street, Lynn, Mass., manufacturer of special machines and tools, has incorporated as the Boston Machine Works Company.

The Beverly Gas & Electric Company, Beverly, Mass., is to install a 500-kw. Curtis steam turbine set and a 300 horse-power Babcock & Wilcox boiler.

The Benedict & Burnham Mfg. Company, Waterbury, Conn., brass and copper rolling and wire mills, is completing a one-story factory building, 42 x 100 feet.

E. D. Jones & Sons Company, Pittsfield, Mass., manufacturer of paper making machinery and turbine water wheels, is petitioning for rights to build a spur track from the Boston & Albany main line, improving a site away from its present plant. The ultimate intention is to erect a new plant on the property, but the company states that this proposition is a thing of the future.

The Springfield Street Railway Company, Springfield, Mass., is planning the erection of a large addition to its repair shop, to cost about $40,000.

Chicago Machinery Market.

CHICAGO, ILL., February 20, 1906.

Machinery dealers and manufacturers report a heavy demand for individual tools from a diversity of interests, structural fitters perhaps figuring as the largest buyers, although their purchases are almost entirely limited to the various types of punches and shears and pneumatic tools. One large geneural equipment order for a new plant at Muskegon, Mich., makes the week's aggregate above the normal for this season, and the Chicago & Alton has also closed for tools for its Bloomington, Ill., shops. The list recently promulgated by this road provided the entire equipment is closed, will represent an expenditure of about $65,000, although from present indications the placing of some of the tools will be deferred. The Allis-Chalmers Company has purchased nine boring mills for its Bullock plant at Cincinnati and is hurrying the shipments for tools placed for its West Allis shops.

The Marshall & Huschart Machinery Company, Chicago, received the contract for the entire shop equipment of the new plant of the Continental Motor Mfg. Company, Chicago, which is now under erection at Muskegon, Mich. The order covers a miscellaneous lot of about 40 tools and includes several boring mills. An order was also received during the week from the Allis-Chalmers Company, Milwaukee, for nine boring mills to be installed at this company's Bullock plant in Cincinnati. Two of the mills are 34-inch and the remaining seven 42-inch.

The Kansas City Bolt & Nut Company, Kansas City, Mo., is planning to add a new 16-inch train of rolls, heating furnaces, full complement of shears and also quite a number of machines in the bolt and nut department. The improvements will probably include the erection of a two-story machine and pattern shop. The entire expenditure will be between $75,000 and $100,000. It is hoped to have the improvements completed before fall.

The Four Wheel Drive Company, Milwaukee, manufacturer of auto trucks, is about to enlarge its factory at Vliet and Thirty-fourth streets and is making arrangements to erect an additional building 50 x 118 feet. Another building will be raised an additional story. The company has developed its truck to a high state of efficiency and is now working on many vehicles to fill orders from various large concerns making delivery of heavy manufactured products. These additions are being made to provide for the immediate needs of the company in getting out its contracts for the present season. It is reported, however, that the company is considering a plan to locate at Kenosha, Wis., but no definite plans have been made as yet.

The Stephens-Adamson Mfg. Company, Aurora, Ill., has secured contract for the complete equipment of machinery for the new sand-lime brick plant which is now being erected at South River, N. J., by the New York Granite Brick Company. The contract includes all the transmission machinery, belt conveyors, bucket elevators, feeders, mixers, screens, belt tighteners, &c. This plant will be a model one of its kind, a large expenditure of money being made to make it complete in every particular. It is expected to have the plant in operation about April 1. The Stephens-Adamson Company has added largely to its machine shop equipment during the past year, both in buildings and tools, and now has on the way a large boring mill and four lathes, which it has been found necessary to install. The company reports trade as having rapidly increased, 1905 business showing up nearly 50 per cent. greater than that of 1904.

F. E. Pfannmueller & Co., Chicago, report the following sales: One 200 horse-power heavy duty Allis engine to the Northwestern Terra Cotta Company, Chicago; 500 horse-power Corliss engine to a large lumber interest in the South, 150 horse-power boiler to a manufacturer at Joliet and a 150-kw. generator direct connected to a Skinner engine to a steel mill at Pittsburgh.

Outside of the general contract, which was awarded to the Wm. Grace Company, Chicago, no contracts have yet been let in connection with the new Cook County Court House. It may be some time before any lettings on the equipment of the building will be made. We give below, however, a synopsis of the bids submitted on the machinery end of the project. A list of the machinery specified was published in *The Iron Age* of January 18: On four horizontal engines, two of which are 450 horse-power, one 300 horse-power and one 175 horse-power, the Allis-Chalmers Company, Milwaukee, made a general bid of $23,565; Ball Engine Company, New York, $26,000, and the Harrisburg Foundry & Machine Company, Harrisburg, Pa., $26,176. Bids were also made by the three firms, respectively, on one additional 450 horse-power cross compound engine of $7000, $8500 and $9796, and on one additional 600 horse-power cross compound engine of $10,070, $11,250 and $12,128. These engines are to be direct connected to generators, two 300-kw., one 200-kw. and one 100-kw., on which the following general bids were made: Western Electric Company, Chicago, $13,260; Triumph Electric Company, Cincinnati, Ohio, $13,850; Arthur Jones Company, $12,975 and $14,975; Chicago Edison Company, Chicago, $16,398; Allis-Chalmers Com

pany, Milwaukee, $25,990. On an additional 300-kw. generator bids were made by the above named firms, respectively, as follows: $4425, $4725, Arthur Jones Company, $4400 and $4975; $5700 and $7715; on one additional 400-kw. generator, as follows: $7200, Triumph Electric Company, no bid; Arthur Jones Company, $6150 and $5350; $7156 and $8925. The boiler specifications provided for five of the water tube type, contractors being required to submit bids on four propositions and one additional 350 horse-power boiler. The four proposals were: No. 1, boilers complete with shaking grates; No. 2, boilers complete with mechanical stokers or traveling grates and superheaters; No. 3, boilers complete with shaking grates and superheaters; No. 4, boilers complete with mechanical stokers or traveling grates and superheaters. The following bids were made: Stirling Consolidated Boiler Company, New York, three bids on proposals 1 and 2 and four bids on proposals 3 and 4, as follows: Proposal No. 1, $29,300, $32,600 and $31,400; No. 2, $33,218, $36,518 and $35,125; No. 3, $33,860, $37,160, $35,960 and $37,000; No. 4, $37,778, $41,078, $39,685 and $43,000. On the one additional boiler the company also made three bids on the first two proposals and four on the last two, as follows: Proposal No. 1, $5860, $6550 and $6800; No. 2, $6587, $7277 and $7487; No. 3, $6760, $7450, $7700 and $7200; No. 4, $7487, $8177, $8387 and $8343. The Heine Safety Boiler Company, St. Louis, made the following bids: Proposal No. 1, $31,991; No. 2, $39,782; No. 3, $37,101; No. 4, $43,719; additional boiler, $8806. E. Keeler & Co., Williamsport, Pa., bid as follows: Proposal No. 1, $34,260; No. 2, $37,820; No. 3, $39,360; No. 4, $42,920; additional boiler, $6760. The Edgemoor Iron Company, Wilmington, Del., made the following bids: Proposal No. 1, $33,000; No. 2, with Hawley grates, $36,350; with McKenzie grates, $37,100; with Green grates, $37,800; Proposal No. 3, $37,560; No. 4, with Hawley grates, $40,910; with McKenzie grates, $41,660; with Green grates, $42,360; for one additional boiler: Proposal No. 1, $6350; No. 2, $7075; No. 3, $7250; No. 4, $7975. General bids on pumps, tanks and high pressure piping were submitted as follows: Thomas & Smith, $34,795; Gallaher & Speck, $34,925; L. H. Prentice Company, Chicago, $39,688; M. H. Crane Estate, $43,000; Hanley-Casey Company, Chicago, $43,875; additional bids from the foregoing firms, respectively, for connections to one extra 450 horse-power engine, $1622, $700, $330, $929, $4500; additional bids for connections to one extra 600 horse-power engine, respectively, $2000, $800, $550, $1100 and $6000. The following bids were submitted on compensators: Arthur Jones Company, $1700; Western Electric Company, $1935; Chicago Edison Company, $2594; Allis-Chalmers Company, $3365; Triumph Electric Company, $2550. On coal conveyors and ash hoists: Link-Belt Machinery Company, Chicago, $16,200; Jeffrey Mfg. Company, Columbus, Ohio, $15,762. On 14 electric passenger elevators the following bids were made: Kaestner & Co., Chicago, $98,356; Marine Engine & Machine Company, New York, $98,695; Winslow Elevator & Machine Company, Chicago, $138,387; Otis Elevator Company, Chicago, $148,870. On five hydraulic elevators: Otis Elevator Company, $233,848; Winslow Elevator & Machine Company, $194,387.

Contract has been let to the Edgemoor Iron Company, Wilmington, Del., by the Allis-Chalmers Company, Milwaukee, for the installation at its West Allis works of five water tube boilers, aggregating a total of 3293 horse-power and having a heating surface of 6586 square feet each. The boilers now in service at the West Allis works will be transferred to the Reliance Works. A new boiler house is now being erected at the Reliance Works to receive the boilers. It will be 46 x 52 feet, built of Milwaukee brick, and will have a 101-foot round steel stack. Operations on the installation of the new boilers at West Allis will begin at once and the old boilers transferred to the Reliance Works as fast as they are replaced. Both boiler plants will be operated in connection with Jones underfeed stokers.

The Allis-Chalmers Company, Milwaukee, has received some notable contracts for engines, pumping and other machinery. The list includes shipments to the following interests: American Sugar Refining Company, at New Orleans, La., six 500 horse-power horizontal Reynolds-Corliss engines and two 12,000,000-gallon horizontal double acting plunger pumping engines; American Sheet & Tin Plate Company, Pittsburgh, 36 x 60 inch heavy duty Reynolds-Corliss mill engine for Sharon, Pa., to be direct geared to plate rolls; Ingersoll-Rand Company, New York, Reynolds heavy duty horizontal cross compound engine, cylinders 26 x 52 inches in diameter and 48-inch stroke, for installation at Jerome, Ariz., on the properties of the United Verde Copper Company; Utah Smelting Company, Ogden, Utah, complete outfit of machinery for sampling mill; Lunkenheimer Company, Cincinnati, Ohio, 425-kw. type A. I. generator unit; Watab Pulp & Paper Company, Sauk Rapids, Minn., 100 horse-power motor; American Car & Foundry Company, an addition to the present power plant at its Huntington, W. Va., works; National Tube Company, Pittsburgh, Pa., rolling mill engine for the plant of the National Rolling Mills, McKeesport, Pa.; Edison Portland Cement Company, Stewardville, N. J., two Allis-Chalmers engines of the horizontal cross compound Reynolds-Corliss type, 24 x 48 x 42 inches; Robert A. Johnson Company, Milwaukee, Reynolds-Corliss engine, 14 x 30 inch, heavy duty type, for left hand drive; Central Pennsylvania Traction Company, Harrisburg, Pa., three Reynolds horizontal heavy duty cross compound engines, cylinders 22 x 48 inches in diameter and 42-inch stroke, for direct connection to three 650-kw. railway type generators; Western Electric Company, New York, for its West Side plant, a vertical cross compound engine, cylinders 22 x 44 inches in diameter and 36-inch stroke, for direct connection to a direct current generator, 600 kw.; Ruemmeli Dowley Mfg. Company, St. Louis, two 18 x 30 inch Reynolds-Corliss engines, for direct connection to 13 x 26 inch ammonia compressors; city of New York, ten electrically driven mutistage centrifugal pumps, each having a capacity of 3000 gallons per minute against a head of 300 pounds per square inch, together with all station appurtenances for high pressure; Delaware, Lackawanna & Western Railroad Company, four centrifugal electrically operated pumps, three each having a capacity of 250 gallons per minute and one of 700 gallons per minute against a head of 100 feet, for mine service in the Lackawanna County, Pa., anthracite coal region.

Cincinnati Machinery Market.

CINCINNATI, OHIO, February 20, 1906.

Trade continues very active, new orders coming forward without any signs of abatement. Deliveries are from three to four months behind, which in some cases result in loss of business.

Much has been said in regard to trade relations with Russia, some reports showing a rather heavy demand from this country. The reverse appears to be true so far as this city is concerned, manufacturers receiving very limited calls for their product to go forward to Russian points. It is, however, the opinion of a large number of machine tool builders that eventually a very heavy trade will develop, dependent largely on a cessation of the factional strife that is now engrossing the thought and attention of these people, which should be followed by industrial activity along all lines.

As regards home consumption there appears to be no limit, and taking this fact in conjunction with the demand from abroad the proposition becomes a difficult one to builders of tools as to how they can best serve the interests of the prospective purchaser and at the same time continue to hold his future trade by making a delivery that may be satisfactory to him. One direct result of this influx of orders has been an advance in prices, necessitated, it is said, by the increase in the cost of raw material and also the wage question. We are reliably informed that one prominent lathe builder of this city has made another advance of 5 per cent. in the price of his product, which, by the way, is the second one within the past six months, or a total advance of 10 per cent. during this period. This is probably a fair index of the situation generally and shows conditions to be most satisfactory.

The plant of the L. Schreiber & Sons Company, which was badly damaged by fire a week or two since, will probably be rebuilt. In the meantime, however, workers employed in the ornamental department will be transferred to the Norwood plant, so that contracts on hand will not suffer any material delay.

The Cincinnati Lathe & Tool Company, with a capital of $25,000, has been incorporated at Columbus during the past week. It has bought the lathe department of the Fosdick Machine Tool Company and will manufacture the entire line formerly built by that company. The new company will occupy a building now being erected on Spring Grove avenue, expected to be in running order by April 1. W. C. Heindel, who for the past ten years has been connected with the Cincinnati Milling Machine Company, is the prime mover in the enterprise and will probably be president of the company. It is understood that the larger part of the equipment has already been arranged for, with the possible exception of a few tools that may be found necessary after the plant is completed.

The Cincinnati Machine Tool Company has recently added a new radial drill gear cutter and a milling machine to its equipment, which will greatly augment its output. Trade, both foreign and domestic, is reported to be very heavy, with new orders coming in daily.

The Hooven, Owens, Rentschler Company, Hamilton, reports trade fairly active and well distributed. W. B. Mayo, who for 13 years represented this company in the East as sales manager, is now located at Hamilton as secretary and manager, succeeding C. O. Richter, who remains one of the directors of the company, although not active.

The Hamilton Machine Tool Company is so crowded with work that it was found necessary to run a night shift. The capacity of the foundry plant has been doubled, and a new electric crane added. This portion of the plant is 80 x 250 feet, and contains a complete pattern storage building. Several lathes, shapers and a horizontal boring machine have been

added during the month. A shipment, consisting of several carloads of drills and lathes, was made last week to a point in Europe. Domestic trade is exceptionally good.

The Niles Tool Works Company has all it can do. Matters have not yet assumed shape whereby it can add to the plant as originally proposed, waiting on the action of council before proceeding.

The Black-Clawson Company has been readjusting the equipment of its plant and adding individual drives to all machines. This is claimed to work very satisfactorily and enables the company to greatly increase its output. A good trade is reported and the outlook is very satisfactory.

The Long & Allstatter Company is greatly crowded, and is figuring on placing its power plant immediately across the street from the present one and utilizing that now occupied as such for a machine shop. Deliveries are several months behind, and new orders are coming forward in large numbers.

Government Purchases.

WASHINGTON, D. C., February 20, 1906.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until March 20 for a valve reseating machine, portable forge, hydraulic jacks and other supplies for the Mare Island and Puget Sound navy yards.

Included in the supplies for the Eastern navy yards, bids for which will be opened at the Bureau of Supplies and Accounts March 6, are boiler feed pumps.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until March 20 for the following machine tools for the Portsmouth, Boston and League Island navy yards: Drills, grinders, punch and bender, pipe bender, crank shaper, milling machine, electric traveling crane, turntables and trolley blocks.

The following bids were opened February 13 for supplies for the navy yards:

Bidder 8, Alexander & Garted, Charlotte, N. C.; 19, Geo. F. Blake Mfg. Company, New York; 20, Berry & Aikins, Philadelphia, Pa.; 26, Bailey-Lebby Company, Charleston, S. C.; 61, Drew Machinery Agency, Manchester, N. H.; 63, Erie Mfg. & Supply Company, Erie, Pa.; 80, A. D. Granger Company, New York; 82, General Electric Company, Schenectady, N. Y.; 104, Handlan-Buck Mfg. Company, St. Louis, Mo.; 121, J. H. Leonard & Co., New York; 125, Montgomery & Co., New York; 135, Manning, Maxwell & Moore, New York; 151, Platt Iron Works Company, Dayton, Ohio; 160, Royce & Ricketts, Washington, D. C.; 183, Smith-Courtney Company, Richmond, Va.; 205, George C. Thomas, New York; 212, Vermilye & Power, New York; 227, Burke Electric Company, Erie, Pa.

Schedule No. 335.

Class 29. One horizontal steam boiler feed pump—Bidder 8, $58.70; 19, $53; 26, $65; 61, $62; 104, $52.50; 151, $49.84; 160, $58; 183, $64.40; 212, $53.30.

Class 30. One 125 horse-power steam boiler—Bidder 8, $1057.35; 26, $1099; 61, $1169 and $1240; 80, $1154; 104, $1100; 183, $1760; 205, $1105; 212, $1119.

Class 31. One 125 horse-power vertical feed water heater—Bidder 8, $141; 19, $185; 26, $122.80; 63, $210; 104, $102; 121, $138.50; 135, $195.19; 160, $159; 183, $99; 205, $119; 212, $97.

Schedule No. 346.

Class 101. One motor—Bidder 82, $304.50; 227, $360.

Class 108. One arbor press—Bidder 20, $99; 125, $14.25.

Under bids opened February 6 for supplies for the navy yards the George E. Dow Pumping Engine Company, San Francisco, Cal., has been awarded class 21, one triplex, single acting, motor driven hydraulic pump, $1225, and Drew Machinery Agency, Manchester, N. H., class 160, one valve reseating machine, $141.

President Roosevelt sent a letter to Congress February 19 announcing the conclusions reached by the majority and the minority of the Board of Consulting Engineers for the Panama Canal. The President, Secretary Taft, Chief Engineer Stevens and all the members of the Isthmian Canal Commission, with the exception of Rear Admiral Endicott, indorsed the finding of the minority of the consulting engineers in favor of a canal with summit level 85 feet above the sea, to be reached by locks. The estimated cost of such a canal is $139,705,000, and it is believed it can be completed in eight and one-half years. It is shown in the minority report that the cost of the sea level canal proposed would be $247,021,000, or about $107,000,000 more than the lock canal. Chief Engineer Stevens and the other engineers who advocate the lock canal say that it would take 20 years to build a sea level canal.

Customs Decisions.

Interesting Reappraisements.

The reappraisement division of the Board of United States General Appraisers has rendered several decisions affecting steel and allied interests. The Bradford Steel Wire Pin Mfg. Company, Limited, Bradford, England, shipped to this country round steel wire pins which the appraiser at New York deemed undervalued. The invoice prices were therefore raised by the authorities for the purpose of assessing the proper ad valorem duties. An appeal followed and General Appraiser Fischer reviewed the action of the local appraiser with the result that the action of the lower official is reversed and the original invoice figures are accepted as correct foreign market value. Umbrella ribs, made by Wright, Bindley & Gell, Limited, Birmingham, England, and entered at New York, provoked a controversy with the American customs officers. The invoice values were raised, and on appeal to the board the importers were denied relief. Another Birmingham firm, Bourne, Graham & Fell, shipped iron balances with tin plates. Upon arrival of the goods on this side the appraiser placed higher values on the merchandise than those invoiced. The board, however, reverses the appraiser. Importers of steel enameled ware have experienced difficulty in persuading the appraisers to accept their invoice values. Two of the foreign exporters, Bruder, Gottlieb & Brauchbar, Brunn, and Gebruder Baumann, Amberg, had increased valuations placed on their goods, but on appeal to the board the original prices were permitted to form the basis for estimating duty. Enameled metal ware exported by Koch & Co., Lubeck, was advanced by disallowance of deduction of charges for commission to agent at Hamburg. Prices of so-called steel points, exported by Harding, Richardson, Rhodes & Co., Limited, Leeds, and the Sheffield Pin Company, Sheffield, have also been under consideration by the board of reappraisement.

Reappraisement Proceedings Still to Be Secret.

The refusal of President Roosevelt, at the conclusion of the conference held in Washington last Thursday, to order so-called "open hearings" in reappraisement proceedings before the Board of United States General Appraisers, has not discouraged the Merchants' Association of New York and the other inferests allied to accomplish the desired change. The association has been notified that the Ways and Means Committee of the House of Representatives will grant a hearing February 23 on the subject of proposed changes in the Customs Administrative Act of 1890. A committee representing the association will be present to express its views, while members of the Board of United States General Appraisers and other officers of the customs division of the Treasury Department have been invited. The movement for the amendment of the present law is not unanimous, and it is likely that the interests opposed to revision will be on hand to voice their opposition.

A Schedule of Times and Places for Hearings.

The Secretary of the Treasury has issued an order dealing with hearings in classification and reappraisement cases coming before the Board of United States General Appraisers at ports other than New York. With a view of expediting importers' appeal cases the Secretary has prepared a regular schedule of times and places of hearings. Formerly it was the practice of the board to send a member of the tribunal to ports at irregular times, depending upon the accumulation of business. Under the new plan, however, unless there is urgent reason for a special hearing, all protests at the several ports will be placed on a calendar for hearings at specific times. The frequency of the hearings will of course depend upon the importance of the port to be visited. Philadelphia will have two hearings a month, while Boston, Chicago and Baltimore are accorded one hearing each. The remaining ports named in the schedule will be granted four hearings a year. It is the belief of the Treasury administration that the new plan will effect economy both as regards expense and the time of members of the Board of Appraisers. The order will take effect at Pacific Coast ports June 1 and at all other ports March 1.

The Senate Passes the Shipping Bill.

Measure Modified by Important Amendments.

WASHINGTON, D. C., February 20, 1906.—The Gallinger-Grosvenor shipping bill, modified by a series of important amendments, was passed by the Senate on the 14th inst. and is now before the House Committee on the Merchant Marine and Fisheries. The vote in the Senate was 38 to 27, five Republicans, Messrs. Burkett of Nebraska, Dolliver of Iowa, La Follette and Spooner of Wisconsin and Warner of Missouri, voting with the Democrats, who solidly opposed the bill.

Amendments Adopted.

The outlook for the passage of the measure had been very gloomy up to within a short time of the taking of the vote, but the managers of the bill agreed to a series of amendments which, while rendering the measure less satisfactory to its advocates, still preserved its principal features and secured for it the support of all but a very few of the majority Senators. The amendments adopted limit the naval reserve created by the bill to 10,000 men, including seamen engaged in the trade of the Great Lakes and the coast; require annual instead of gross appropriations; restrict the cargo vessel subsidies to steam vessels of more than 1000 tons, sailing vessels of more than 200 tons and fishing vessels of more than 20 tons; exclude American vessels operating exclusively between foreign ports; give the United States Government the authority to take immediate possession of a subsidized vessel in case of emergency; increase the number of American citizens required in the crews of subsidized ships, and increase the subsidized Gulf coast lines from four to six and the Pacific Coast lines from three to four.

The measure as it passed the Senate provides for a naval reserve of 10,000 men to receive annual retainers on certificates of the Secretary of the Navy, as follows:

For each officer of the line or Engineer Corps, having the rank of lieutenant of the Naval Reserve, $110; for each officer of the line or Engineer Corps, having the rank of lieutenant (junior grade) in the Naval Reserve, $90; for each officer of the line or Engineer Corps, having the rank of ensign in the Naval Reserve, $80; for each man with a rating of chief petty officer, $70; for each man with a rating of petty officer, first-class, $60; for each man with a rating of petty officer, second-class, $48; for each man with a rating of petty officer, third-class, $40; for each seaman, first-class, $36; for each seaman, second-class, $30; for each seaman, third-class, $24.

Cargo Vessel Subventions.

The second feature of the bill provides a direct subvention of $5 per gross registered ton, to be paid to cargo vessels in accordance with certain conditions laid down as follows:

That in the interest of the national defense and for the performance of the public services hereinafter specified, after July 1, 1907, the Secretary of the Treasury is hereby authorized and directed to pay, subject to the provisions of this act, out of any money in the Treasury to be annually appropriated therefor upon estimates to be annually submitted to Congress in the Book of Estimates, to the owner or owners of any steam vessel of over 1000 gross tons, and of any sail vessel of over 200 gross tons, and fishing vessel of over 20 gross tons hereafter built and registered in the United States or now duly registered by a citizen or citizens of the United States (including as such citizens any corporation created under the laws of the United States or any of the States thereof), engaged exclusively as a common carrier for the service of the public, subventions as hereinafter provided; that is to say (*a*) the sum of $5 per gross registered ton for each vessel which has been engaged in the foreign trade by sea or the deep sea fisheries for a period of 12 months, including time necessarily consumed in receiving or discharging cargo, or not to exceed two months in making annual or extraordinary repairs; (*b*) the sum of $4 per gross registered ton for each vessel which, during any 12 consecutive months, has been engaged in the foreign trade by sea or the deep sea fisheries for a period of nine months or over, but less than 12 months, including time necessarily consumed in receiving or discharging cargo, or not to exceed one month in making extraordinary repairs; (*c*) the sum of $2.50 per gross registered ton for each vessel which, during any 12 consecutive months, has been engaged in the foreign trade by sea or the deep sea fisheries for a period of six months or over, but less than nine months, including time necessarily consumed in receiving or discharging cargo, or not to exceed one month in making extraordinary repairs.

To the rates of subsidy above described, 30 per cent. is added for any vessel operated between parts of the United States and the Philippines up to July 1, 1909. The application of the coastwise laws to the Phillippine Islands, which under existing law takes place on July 1, 1906, is deferred by the bill to July 1, 1909.

Conditions of Subventions.

In addition to the conditions above set forth, it is provided that (1) any vessel receiving a subvention may be taken and used by the United States for the national defense or for any public purpose at any time upon payment to the owner or owners of the fair actual value of the same at the time of the taking, or a fair rate of hire to be agreed upon; (2) any subsidized vessel shall carry free of charge the mails of the United States; (3) until July 1, 1912, one-sixth and thereafter one-fourth of the crew of a subsidized vessel shall be citizens of the United States, or those intending to become such, and of the navigating forces on deck at least one-half shall be able seamen; (4) any vessel employed in the foreign trade shall maintain at least Class A1 if a steam vessel, and at least Class A1½ if a sail vessel; (5) that all ordinary repairs for overhauling shall be done in the United States except in cases of emergency and (6) no vessel shall receive a subsidy until the following proportions of her crew have been enrolled in the naval reserve: After July 1, 1908, one-eighth; after July 1, 1912, one-sixth; and after July 1, 1917, one-fourth; provided, that if naval reserves cannot be obtained at a foreign port with a reasonable effort, as certified by an American consul, other persons may be substituted until the first return of the vessel to the United States.

A rebate of 80 per cent. of the tonnage dues to be paid by any vessel upon entering United States ports is provided for by the bill on proof to the satisfaction of the Commissioner of Navigation that the vessel has carried on any foreign voyage "a boy or boys, a citizen or citizens of the United States under 21 years of age suitably trained during the voyage in seamanship or engineering in the proportion of one for such vessel, and in addition, one for each 1,000 tons of her net registered tonnage."

Mail Subventions.

The mail subvention provided for by the bill constitutes a very important feature. Under this provision about $3,000,000 annually will be spent by the Postmaster General on the basis of contracts to be made with 13 new lines of mail steamers—three to leave Atlantic coast ports, one running to Brazil, one to Uruguay and Argentina, and one to South Africa; six from ports on the Gulf of Mexico, embracing one to Brazil, one to Cuba, one to Mexico, and three to Central America and the Isthmus of Panama; four from Pacific Coast ports, embracing two to Japan, China, and the Philippines direct, one to Japan, China, and the Philippines, via Hawaii, and one to Mexico, Central America and the Isthmus of Panama. The subventions of ocean mail lines are also conditioned upon the employment by those lines of crews embracing naval reserves in proportions ranging from one-eighth to one-fourth the entire crews.

The passage of the bill by the Senate, even in its amended form, reflects great credit upon the parliamentary skill and judgment of Senator Gallinger, who had charge of the measure, and Senator Frye, who for many years was the chief advocate of legislation of this character. Senator Gallinger emphasized the fact that one important reason why the United States has not been able to build ships more cheaply is because our shipyards have not had sufficient orders to enable them to standardize types and thus reduce the cost of construction. He predicted that under the pending bill, if enacted into law, American shipbuilders would soon be able to standardize their output and greatly to reduce the cost of construction, although it must be remembered that the American standard of wages, even with increased efficiency, would always constitute an element of expense difficult to overcome.

The House Committee on the Merchant Marine and Fisheries will take up the shipping bill in a few days and its advocates will endeavor to ascertain the sentiment in the House with regard to the measure. Speaker Cannon has been quoted as opposed to this legislation in any form, but the amendments to the bill have rendered it

more acceptable to many of its opponents and the prospect for its final passage is believed to be brighter to-day than at any time since it was framed by the Merchant Marine Commission. W. L. C.

The Pressed Steel Car Company.

The seventh annual report of the Pressed Steel Car Company, presented at the annual meeting February 21, gives the following condensed balance sheet as of December 31, 1905, compared with the figures for the preceding year:

Assets.		1905.	1904.
Properties and franchises, January 1, 1905	$26,043,767.27		
Less deductions during 1905	50,145.00		
	$25,993,622.27		
Less depreciation ch'gd off at close of year 1905	175,000.00		
		$25,818,622.27	$26,047,767
Securities owned		2,052,553.62	1,712,881
Taxes and insurance not accrued		24,936.42	22,057
Accounts receivable		1,826,112.24	493,251
Stock of materials on hand		4,920,252.79	2,164,390
Cash in banks		878,040.06	2,130,517
Totals		$35,520,517.40	$32,566,863
Liabilities.			
Common stock		$12,500,000.00	$12,500,000
Preferred stock		12,500,000.00	12,500,000
Five per cent. first mortgage gold notes, payable $500,000 annually		3,000,000.00	3,500,000
Purchase money mortgage —McKees Rocks plant, 4 per cent	$235,000.00		
Purchase money mortgage —Allegheny plant, 4 per cent	75,000.00		
		310,000.00	310,000
Accounts and bills payable		4,156,380.84	844,997
Accrued salaries and wages		184,017.81	88,255
Accrued interest		62,593.60	72,988
Accrued preferred dividends		218,750.00	218,750
Surplus, January 1, '05	$2,531,873.64		
Profits for year 1905	1,106,901.51		
Profit and loss surplus	$3,638,775.15		
Deduct depreciation and renewals	$175,000.00		
Deduct dividends on pref. stock	875,000.00		
	$1,050,000.00		
		2,588,775.15	2,531,873
Totals		$35,520,517.40	$32,566,863

Following are extracts from President F. N. Hoffstot's report to the stockholders: In the year 1905 the railroads of the United States ordered more cars than ever before in their history. In our last annual report we stated that the average annual requirements of the railroads of the United States were about 195,000 cars, but that during the years 1903 and 1904 only 240,000 cars were ordered. The published reports for the year 1905 show that over 340,000 cars were ordered in that year, indicating that the railroads not only covered their estimated annual requirements, but also added thereto in their orders the cars they had failed to purchase during the previous two years.

It is gratifying to note the continuing tendency of substituting steel for wood in all freight car construction. Of the cars ordered during the year 1905, almost 50 per cent. were all steel or steel underframe construction.

It is with satisfaction that we are able to state that the experience of users of steel cars strongly inclines toward the pressed steel type over the structural, and while this company designs and manufactures cars in which structural steel is used as well as pressed steel, our experience shows conclusively that in many places pressed steel can be used more advantageously than structural steel, and in such places we have continued to advocate its use.

The company's gross sales for 1905 were $19,357,826.88 (60 per cent. of this being done the last five months of the year). On this the net profits were $1,106,901.51.

The operations of the forge plant at Allegheny have been satisfactory, and the difficulties heretofore experienced in securing proper supply of forgings have, by the operation of this plant, been eliminated. The results have proved the wisdom of our action in having erected the forge plant at these works. For the same reason the erection of a forge plant at McKees Rocks has been ordered, which when completed will relieve the forge situation and make us independent of outside forge manufacturers, as we will make practically all the forgings required by the company.

For several years the company has been especially engaged in the work of designing passenger cars to be constructed of steel, or steel in connection with fireproof material, for use on steam and electric railroads. The results of these efforts show that the company can produce a car with little additional weight over the wooden car now generally used and is able to build such cars for little increased cost. The interest and encouragement shown by the railroad people in this new field warranted the construction of a works for this purpose, separate and apart from the company's freight car works. Accordingly, works for the construction of passenger cars are now almost completed and early in the year will be in actual operation, as a number of orders have already been booked for all-steel steam and electric cars.

It is less than ten years since one of the constituent companies forming the Pressed Steel Car Company built the first all-steel car now used in regular freight traffic; at that time steel freight cars had few advocates among the leading railroads. At the end of this year there will be approximately half a million steel and steel underframe cars in service.

The increase in stocks and securities shown on the financial statement is due to our investment in the preferred stock of the Canada Car Company, Limited. The common stock of this corporation, which came to the company under the arrangement referred to in the last annual report, is not included.

During the year it was decided not to renew operations at Joliet, but to remove all of the machinery that could be employed profitably to Allegheny and McKees Rocks plants to be used in connection with the additions that have been authorized, in order to increase the output of these plants. When these additions and improvements have been completed the McKees Rocks plant will have been increased in its daily capacity by 50 cars.

The Pennsylvania Car Wheel Company made during the year 171,460 wheels and showed satisfactory earnings. During the year the Pennsylvania Car Wheel Company acquired a majority of the stock of the Pennsylvania Malleable Company, a Pennsylvania corporation which controlled the Central Car Wheel Company, both companies having plants located at McKees Rocks and owning over 12 acres of land adjacent to the Pressed Steel Car Company's works at McKees Rocks. The terms on which this purchase was made necessitated no increase in the capital of the Pennsylvania Car Wheel Company, but as the Pennsylvania Malleable Company has a large floating debt it is necessary to consolidate this debt. This will be effected by an issue of bonds of the Pennsylvania Malleable Company. The Pennsylvania Malleable Company has a capacity of 1800 tons of malleable and steel castings per month, and the Central Car Wheel Company has a capacity of 100,000 wheels per annum.

The gross sales of the Western Steel Car & Foundry Company for the year were $7,563,193.77. This company has been able to secure fairly satisfactory operations from its Hegewisch plant. The rapid strides in the substitution of steel for wood and the adoption of all-steel or steel underframe construction by the leading Western trunk lines have warranted a further increase to the capacity of the Hegewisch plant. These additions will be completed by June 1, and after that date the combined plants of the Western Steel Car & Foundry Company—that is, at Hegewisch and Anniston—will have a capacity of upward of 100 cars per day. The Anniston plant now produces its requirements in bar iron and malleable and gray iron castings and is averaging in output nearly 20 cars per day.

Railroads Cannot Deal in Commodities They Haul.

What is doubtless the most important decision ever given relating to interstate commerce was rendered by the United States Supreme Court at Washington February 19, when the court unanimously laid down the principle that railroads cannot deal in the commodities which they haul over their lines. The breadth of the decision was not expected by the attorneys who had argued the case. The suit was started in the United States Circuit Court of the District of West Virginia by the Interstate Commerce Commission to enjoin the carrying out of a contract under which the Chesapeake & Ohio Railroad agreed to deliver at New Haven, Conn., 60,000 tons of New River coal for the New Haven Railroad at $2.75 a ton. The price of coal at the mines plus the cost of transportation from Newport News to New Haven was $2.47 per ton, while the published rate from the mine to Newport News was $1.45 per ton. It was charged that the price named was in effect a discrimination, in that the company carried the coal for less than the usual rate. The company denied the discrimination and alleged that the loss it sustained was on the price of coal and that it took this means of reimbursing the New Haven road for $100,000 it had lost through the failure of the Chesapeake & Ohio to fill a previous contract because of a strike of miners. The court said that while there was no prohibition in the interstate commerce law of railroad ownership of commodities, it was plain that to permit such ownership was contrary to the very spirit of the act.

If the court should now sustain the claim of the Interstate Commerce Commission that private car lines are common carriers the decision just rendered may be held to prohibit the owners of refrigerator cars from using their own cars for the transportation of their products. The decision enlarges considerably the power of the Interstate Commerce Commission, carrying it in this particular direction further than is contemplated even by the pending Hepburn bill.

Increase in British Pig Iron Output in 1905.

The statistics just collected by the British Iron Trade Association show that the total production of pig iron in the United Kingdom in 1905 was 9,592,737 gross tons, which compares with 8,562,658 tons in 1904 and with 8,811,204 tons in 1903. The production of pig iron in 1905 was thus 1,030,079 tons greater than in 1904 and 781,533 tons greater than in 1903. The largest gain over 1904 was in hematite or Bessemer iron, which increased from 3,362,883 tons to 4,070,222 tons. In forge and foundry irons the increase was from 3,841,975 to 4,276,943. Basic iron decreased from 1,192,120 tons to 1,057,999 tons. The increase in spiegeleisen and ferromanganese was from 165,680 to 187,573 tons. The pig iron output in the second half of the year was 4,971,137 tons, a gain of 349,537 tons over the first half. A table is given of the average number of furnaces in blast in the months of last year. This was 346. The total number of furnaces in the United Kingdom is 525.

Pig iron stocks in store in the Cleveland district increased from 192,127 tons to 704,900 tons. In the Cumberland district stocks at the end of 1905 were estimated at 51,863 tons, and in Scotland, both in store and in makers' hands, at 91,935 tons. It is stated that in all other districts apart from Scotland the stocks in makers' hands were very light at the close of the year, the total of all stocks of pig iron on December 31 being about 900,000 tons. The gain in stocks last year was largely the result of the corner in Cleveland pig iron warrants.

The ninetieth meeting of the American Institute of Mining Engineers is in session this week at South Bethlehem, Pa.

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HARDWARE

THE quantity of metal which enters into Hardware and related lines is of course small compared with that which goes into such great products as Rails, Structural Material, Machinery and Armor Plate. The increase in the use of the metals in Hardware articles and in the allied products has, however, a noticeable influence in the swelling of the aggregate of the consumption of the metals employed. This fact is illustrated in the enormous increase in the use of Wire, the total annual tonnage of which has sometimes closely approximated that of Rails. It is significant too that in a great many articles Iron or other metal is being used where wood was formerly employed. Every Hardware store furnishes examples of this tendency. A large proportion of the extraordinary number of articles on the market now which were not known fifty years ago are made of metal. This increase in the consumption of Iron, Copper, Tin and other metals in these finished products has peculiar significance, however, as suggestive of the rapidity with which the heavy products running into a colossal tonnage are making drafts upon the supplies of the raw material.

We are so accustomed to regard prevailing prices of useful metals as abnormally high because of present prosperity and consequent enormous demand that we are apt to overlook the very serious contingency we are facing of the tremendous exhaustion that is going on in raw material, as compared with discoveries of new deposits of ore in Iron, Copper, Lead and Tin. We are apt to talk of certain large deposits of ore as being inexhaustible because the deposits themselves are so very great as compared with the drafts we are making upon them. The matter, however, assumes a very different aspect when the demand increases in a constantly accelerating ratio year by year. Iron Ore beds that were calculated to last fifty years when only 25,000,000 tons were annually taken from them clearly have their end in sight when the demand grows at the rate of 10 per cent. and more each year, especially when it is remembered that discoveries of new ore bodies have not in the last few years kept pace with the increase in the use of metals.

If we judge only by analogy and experience we shall be apt to think this discussion purely an academic one, because in the past something always happened and things generally took care of themselves in the long run. It may, indeed, be so again. We are confronted, however, with new industrial conditions that render past experience almost useless in judging the future. Methods of communication alone—steam and electric railroads and steamships—annually absorb an amount of iron and copper for which there is no precedent in the past. As the waste places of the earth are opened up and the uncivilized and semi-civilized nations come further under the sway of the civilized ones it is evident that this absorption will go on steadily increasing. There are few things so absolutely essential to civilization, as we now know it, as these means of communication, and certainly no factors more potent in the unification and humanizing of the various countries. These methods of communication depend absolutely upon the plentiful supply of the useful metals—particularly iron and copper. When our dreams of furnishing the markets of the world with our wares are realized it will necessarily be at the expense of our ore supplies.

It is, of course, perfectly possible that great unknown ore bodies may suddenly be developed, as in the case of the iron mines of Lake Superior and the copper deposits of Montana; but most diligent search has failed to disclose them very recently in any comparison with the increased use of these metals. An idea of how fast the use is growing may be gathered from the statement that in about 50 years the shipments of iron ore from the Lake Superior mines have grown from a few thousand tons to nearly 34,000,000 tons in 1905. What the effect may be upon production and prices, how soon we may be driven to the mining of ores of lower grades, of which there is in this country fortunately an indefinite supply, what improvements may be made in obtaining and subduing the ore, whether or not aluminum or other substitute shall come to the rescue, are interesting questions which indicate the difficulty there is in basing any forecast of the market on the continuance of existing conditions. Unexpected developments and perhaps revolutionary changes in the situation have always to be reckoned with.

Condition of Trade.

During the past week there has been a continuance of the features of the situation with which the trade are familiar, the volume of business being large, prices steady and strong and the tone of the market confident. Changes in quotations in Hardware lines since our last report have been unimportant, but there are minor advances taking place from time to time. In only a few instances is there a tendency toward lower and irregular prices, and these for the most part are owing to special circumstances. The weather which has prevailed has been of a character to encourage outdoor work, and building operations continue active, with a demand for Tools and Supplies which in many cases taxes the ability of the merchants and manufacturers to meet with as much promptness as is desirable. Business at this time is active in seasonable specialties, with some late shipments of spring goods, while summer goods are beginning to move freely. A good part of the space in the following pages is devoted to reports of the retail Hardware conventions, which are of more significance than in former years on account not only of the large membership and attendance, but also from the attention which is being given them by manufacturers, who in far greater number than ever before are represented with exhibits. In this way retail merchants are kept in close touch with some of the producers of the goods which they handle, and the result is decidedly educational and in every way advantageous.

Chicago.

Trade conditions prevailing throughout the West and Northwest are eminently satisfactory, and that manufacturers are enjoying their share of the prosperity is indicated by the maintenance of prices on practically all lines. The week's record shows practically no change in quotations, and with no impending advances in the cruder forms of Iron and Steel a higher level of values in finished products will not be established. Jobbers are already receiving heavy shipments of spring and summer goods, and while the retailers are not placing large orders for their future requirements in these lines a big trade is looked for during the month of March. Notwithstanding the heavy sales of Lawn Mowers last summer, the retail merchants up to the present time have not bought heavily and the trade in Garden Tools is not expected to revive

until the spring opens. The manufacturers of Cotton Hoes are literally swamped and are behind on their deliveries to the Southern States. These tools in that section of the country are purchased much earlier than Hoes in the North, on account of climatic conditions. Manufacturers of Wire products are in receipt of heavy specifications from large consumers and distributers, and while the new tonnage being placed is not very heavy the specifications are greatly in excess of shipments. The displays of manufacturers and jobbers at the conventions of the retail Hardware merchants' associations this year have been more elaborate than ever before, and the producer and distributer are beginning to realize more fully than ever the value of these meetings for the introduction and display of their wares. In seasonable goods and specialties many orders are placed during these gatherings, and in addition to their immense advertising value, these displays are also a source of profit. The attendance at the conventions held thus far surpasses all previous records and is indicative of the interest taken in these organizations, which are potent factors in the education of the trade and in safeguarding the interests of the retailer.

NOTES ON PRICES.

Wire Nails.—A fair current demand, with heavy specifications on contract orders, has put mills somewhat behind in deliveries. Curtailed production to some extent is caused by a scarcity of Steel. Prices are firm and quotations are as follows, f.o.b. Pittsburg, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads to jobbers.....$1.85
Carload lots to retail merchants..... 1.90

New York.—During the last few days there has been a revival in demand for small lots from store, so that there is a fair amount of business for the season, where little is usually expected. Some merchants in territory tributary to this city, who placed orders for delivery in March, are now asking their delivery at once. Quotations on small lots from store are on the basis of $2.10 per keg.

Chicago.—Steel shortage is curtailing production at all the mills, and deliveries to some extent are being deferred as a result. It is too early to predict a probable shortage, as the wide distribution during the past few months undoubtedly will to a large extent relieve the pressure on the mills during the spring months. The continued open winter is favorable for building operations, and consumption is heavier than it has been in past years at this season. Notwithstanding the fact that new tonnage is comparatively light, the month's total is greater than during the same period last year, but February, 1905, was a particularly light month, as the largest contracts were all closed during the preceding November. One of the largest independent mills is reported to be almost sold up on Nails through the spring months, and an early advance in prices would be welcomed by the independent manufacturers, owing to the prevailing quotations on raw materials, which are so high as to leave only a small spread to cover the cost of conversion. Quotations are unusually well maintained and are unchanged, as follows: $2 in car lots to jobbers and $2.05 in car lots to retailers, with an advance of 5 cents for less than car lots from mill.

Pittsburgh.—The very heavy buying movement which has characterized the Wire Nail market for the past three or four months still continues, but is possibly not quite as heavy as it was last month. However, the mills are still very much behind in deliveries and, owing to the heavy specifications coming in, are not catching up on shipments to any extent. It is not believed there will be any advance in prices of Wire Nails this month, but prices may possibly be advanced very early in March. Recent press reports of an advance in prices of Wire Nails are untrue. Prices remain firm and as follows: Wire Nails, $1.85 in carloads to the large jobbing trade and $1.90 in carloads to retail merchants, f.o.b. Pittsburgh, plus actual freight to point of delivery, terms 60 days, less 2 per cent. off for cash in 10 days.

Cut Nails.—The Cut Nail Association will hold a meeting in Philadelphia on February 28. Current orders are moderate in volume, which with specifications on contract orders are keeping the mills well employed. Quotations are as follows: $1.80, base, for carload lots, f.o.b. Pittsburgh; $1.85 for less than carload, f.o.b. Pittsburgh; $1.95 for carload lots, on dock, New York; $2.00 for less than carloads, on dock, New York. Iron Cut Nails at points west of Buffalo and Pittsburgh are held at 5 to 10 cents advance on Steel Cut Nails.

New York.—The local demand is moderate and prices are fairly well maintained. Quotations for small lots from store are on the basis of $2 per keg.

Chicago.—New tonnage continues light and the mills are operating on specifications on contracts placed some time ago. Owing to the high prices prevailing for raw material quotations are being well maintained and are unchanged, as follows: Steel Cut Nails in car lots, $1.95; less than car lots, $2; Iron Cut Nails, $2.05 in car lots; less than car lots, $2.10.

Pittsburgh.—We note a fair demand for Cut Nails, and the mills are busy filling specifications on contracts placed before the recent advance was made. We quote Cut Nails as follows: $1.80, base, for carload lots, f.o.b. Pittsburgh; $1.85 for less than carloads, f.o.b. Pittsburgh; $1.95 for carload lots, on dock, New York; $2 for less than carloads, on dock, New York. Iron Cut Nails at points west of Buffalo and Pittsburgh are held at 5 to 10 cents advance on Steel Cut Nails.

Barb Wire.—Filling specifications on contracts furnish the largest part of the activity at the mills, while there is a comparatively light receipt of new business. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots	$2.00	$2.30
Retailers, carload lots	2.05	2.35
Retailers, less than carload lots	2.15	2.45

Chicago.—The heavy specifications which are being received by the mills indicates a heavy movement of Barb Wire during the spring months, and the scarcity of steel has already to some extent curtailed the production of Western mills. With raw material on its present basis, no difficulty is experienced in maintaining quotations, and with but few exceptions the outside mills are in favor of slightly higher prices. Quotations continue well maintained and are unchanged, as follows: To jobbers, Chicago, car lots, Painted, $2.15; Galvanized, $2.45. To retailers, car lots, Painted, $2.20; Galvanized, $2.50. Retailers, less than car lots, Painted, $2.30; Galvanized, $2.60. Staples, Bright, in car lots, to jobbers, $2.10; Galvanized, $2.40; car lots, to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—The amount of new tonnage being placed is comparatively light, but specifications on contracts continue to come in very freely, and shipments by the mills are heavy. Prices remain firm, as follows: Painted Barb Wire, $2, and Galvanized, $2.30, in carload lots to the large jobbing trade, with the usual advance of $1 a ton to retailers in carload lots, f.o.b. Pittsburgh, 60 days, or 2 per cent. off for cash in 10 days.

Smooth Fence Wire.—Manufacturers of Fencing placed large orders for Wire some time since, and the mills are now busy filling specifications on these orders. The amount of new business is light. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads $1.70
Retailers, carloads 1.75

The foregoing prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12&12½	13	14	15	16
Annealed	Base	$0.05	.10	.15	.25	.35	.45	.55
Galvanized	$0.30	.35	.40	.45	.55	.65	1.05	1.15

Chicago.—The new tonnage that is being received is exceedingly light. but specifications on old contracts are

very heavy for the month of February. Large distributers are already accumulating stocks in anticipation of the spring demand and Fence manufacturers are anticipating shipments on their contracts whenever it is possible for them to do so. Quotations are firmly maintained as follows: To jobbers, $1.85, f.o.b. Chicago, in car lots, and car lots to retailers, $1.90.

Pittsburgh.—The amount of new business being placed is light, but the mills are busy filling contracts placed some time ago by the large trade before the advance in prices was made. There is some talk of an advance in prices of Wire to become effective about March 5, but nothing official has been given out. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	$1.70
Retailers, carloads	1.75

The above prices are for base numbers, 6 to 9.

Axes.—The Axe manufacturers are in conference in this city with a view to reaching some kind of an understanding which will keep prices from going all to pieces. A substantial reduction in price is anticipated, but whether it will be $1.50 or $2 remains to be seen, with a fair probability that an intermediate figure will be agreed upon. Indeed, it looks as if the prices which will be announced after March 1 will be $1.75 below those which have been in force.

Poultry Netting.—The mild, open winter has, in a measure, stimulated the demand for this commodity and, as the volume of orders has been large, being, it is said, equal to if not in excess of previous years, prices have been fairly well maintained. Prices were advanced considerably at the opening of the season in October last and, with the exception of some slight irregularities in certain sections, have been adhered to. Manufacturers so far this season report having booked more orders than ever before, and on account of the unprecedented demand the opinion is expressed in some quarters that from the present outlook it appears to be more of a question of producing the Netting than the matter of price. While the price of Netting has been advanced about 8 per cent., this does not cover the increased cost of the raw material, such as Steel and Zinc. There is a feeling among some of the makers that the situation is not accurately understood by the wholesalers so far as the supply is concerned, some of whom have made a leader of it. Manufacturers anticipate no surplus, from present indications, as many of them say their capacity was sold up long ago, it being a study with some regarding the prompt execution of orders as early in the season as the goods will be wanted. Even higher prices than those now current are regarded as not unlikely.

Rope.—Rather a larger demand than is usually considered seasonable is reported, owing to favorable weather conditions. Prices are fairly well maintained. Quotations are as follows: Pure Manila, 12½ cents; B quality, 11½ cents; Pure Sisal, 9½ cents; No. 2 quality Sisal, 8 cents per pound.

Binder Twine.—It is reported that the Ludlow Manufacturing Association, Boston, Mass., has announced prices on Binder Twine which are ¼ cent higher than the opening quotations for 1905. The prices are referred as being as follows: Sisal and Standard, 9½ cents, f.o.b. central points, with ¼ cent added for Missouri River points. Less than carload lots are quoted ¼ cent higher. It is thought that this action may possibly cause other large concerns to make an earlier announcement of prices than they otherwise would have done. Merchants who have given priceless orders are now anxious that prices be announced at once.

Linseed Oil.—A decline of 2 cents per gallon has taken place in the price of Linseed Oil since our report of the market last week. The cause of the reduction is attributed to a falling off in demand on account of unsettled weather conditions and the offering of Oil at 2 cents lower than crushers' quotations by those who had purchased at lower prices. Buyers are holding off on an apparent weak market and are only purchasing enough for immediate requirements. Out of town Raw, 40 to 41 cents; City Raw, 42 to 43 cents per gallon; Raw, Calcutta seed, 65 cents per gallon. Boiled Oil, 1 to 2 cents advance over Raw.

Spirits Turpentine.—Small receipts of Turpentine at Savannah caused partially by heavy rains throughout the Turpentine territory and scarcity of labor, have resulted in a sharp advance in prices. The local market is strong in tone. New York quotations are as follows, according to quantity: Oil Barrels, 72 to 72½ cents; Machine Made Barrels, 72½ to 73 cents per gallon.

TWELFTH ANNUAL MOTOR BOAT AND SPORTSMAN'S SHOW.

THE twelfth annual Motor Boat and Sportsman's Show was opened at the Madison Square Garden, New York City, Tuesday night, 20th inst., by Attorney-General Julius M. Mayer, acting as the representative of Governor Higgins. Among the invited guests were a large number of municipal, State and national officials, including representatives of the army and navy. The exhibition will be open every day and evening, except Sundays, up to March 8. Capt. J. A. H. Dressel, the manager continuously since the first show, reports 25 more exhibitors than ever before.

In the center of the main floor is a lake large enough to allow ten laps to the mile and holding 925,000 gallons of water. The lake will be put to a number of practical uses, especially for showing Motor Boats under speed, which will include those from power driven craft in 18-foot Yacht Tenders to the Cruiser of 40 feet with a speed exceeding 20 miles an hour. There will also be given every afternoon and evening Canoe and tub races, swimming contests and Canoe tilting matches.

An exceedingly interesting exhibit will be the showing of biograph pictures of wild animals of America under natural conditions by "Buffalo" Jones, ex-chief game warden of the Yellowstone Park, in which there will be 4000 feet of moving pictures, this exhibition being given in the basement. From the nature of Mr. Jones' Government position he has had exceptional opportunities for attaining such data. The Indians are more numerous this year than at previous exhibitions, and besides making baskets, moccasins, canoes and snowshoes, they will give war dances and participate in bow-and-arrow shooting contests for prizes. Dr. Cecil French, just back from Abyssinia, says his exhibit of wild animals from Africa will surpass anything previously displayed at the Garden.

The exhibition this time has been departmentized, the main floor or amphitheater being taken up largely by Motor Boats, including those on the lake, the basement containing Motors and Engines in operation and the galleries Sportsmen's Goods of every description. On the island in the lake there will be examples of portable houses for camping and other purposes in various sizes, styles and kinds, a portion of the island being laid out as a garden. The camp exhibits generally will be more numerous than ever.

As indicative of the growth, expansion and diversity of the Sportsman's Show in contrast with the earlier exhibits it may be said that the Ward Steamship Company, operating to Cuba and Mexico, the Mexican Central Railroad and City of Tampico in Mexico, have a joint exhibit that among other features will include 14 tarpon, none less than 6 feet long, with characteristic exhibits from Virginia, Maine and by the Grand Trunk, Canadian Pacific and Richelieu & Ontario Navigation companies, depicting scenes, &c., in the vast territory peculiar to each, with camps, log huts, guides and other paraphernalia of outdoor life. Adjoining the Maine exhibit there is a small park containing pheasants, grouse and other birds, together with half a dozen deer. An interesting feature of the show will be that of bee culture, including hives of glass, with lights in the rear, so that the process of making honey under natural conditions can be readily seen; also silkworm culture.

E. H. Kearney has succeeded to the Hardware business of E. Q. Dyer, Hyde Park, Mass., and is having the store renovated.

Illinois Retail Hardware Association.

(By Telegraph.)

WITH an attendance of nearly 500 members the eighth annual convention of the Illinois Retail Hardware Association was auspiciously opened at the First Regiment Armory, Chicago, on Tuesday morning. After the invocation by Rev. Austin D. Cribe, Hon. Edward F. Dunne, Mayor of Chicago, delivered an address of welcome and extended the freedom of the city. A response to the welcome was made by Charles H. Williams of Streator, ex-president of the State Association.

President Frank B. McKenney, Rockford, in an eloquent address, reviewed the work of the year, and the announcement of the growth of the association from 225 to nearly 600 members was followed by prolonged applause. He referred to the efforts that are being made by the State organization to combat catalogue house competition and the success of organized effort in securing a revision of railroad rates on shipments within the State, and called attention to the dangers of the iniquitous parcels post bill.

J. O. Perkins of Butler Bros. then read an interesting paper on "Hardware Retailers' Advertising," which contained many valuable pointers for the merchants. Addresses by manufacturers and jobbers consumed the remainder of the morning session, and brief remarks were made by A. C. Bartlett of Hibbard, Spencer, Bartlett & Co., George W. Trout of the Trout Hardware Company, Charles W. Asbury of Philadelphia, vice-president of the American Hardware Manufacturers' Association, W. H. Bennett of the Lawson Mfg. Company, Henry A. Taylor, Western sales manager of the American Screw Company, F. F. Porter and A. P. Reiter.

The programme provides for morning sessions only and this arrangement gives the visiting members ample opportunity to inspect the numerous exhibits on the main floor of the armory and to visit the salesrooms of jobbers and manufacturers in the city. On Thursday afternoon the members will be the guests of the American Steel & Wire Company, and will be taken to Waukegan on a special train to inspect the company's large wire mill at that place.

Missouri Retail Hardware Association.

(By Telegraph.)

DARK skies and pelting rain interfered with the attendance at the eighth annual convention of the Missouri Retail Hardware Association, but they could not dim the ardor of the loyal men who did attend. The opening session Tuesday morning at the Coates House, Kansas City, saw about fifty members and all the officers in their places.

The following convention committees were announced: Press, J. L. Boehl, St. Louis; Frederick Neudorff, St. Joseph; O. W. Johnston, Marshall. Resolutions, W. H. Hahn, St. Louis; J. P. Cochran, Breckenridge; M. C. Post, Brookfield. Membership, U. L. Coleman, Marionville; Guy Coleman, Platte City; J. D. Weber, Clayton; Frank Mayer, Macon. Sergeant-at-Arms G. A. Pauly, St. Louis.

The president's annual address, delivered by Taylor Frier of Louisiana, contained an eloquent eulogy on the work of Secretary Neudorff and a plea for better support. The president also recommended that a solicitor be employed to call on all Hardware merchants in the State to solicit membership and insurance.

The report of the secretary, Frederick Neudorff of St. Joseph, showed nearly $1800 on hand, but bewailed the fact that far too small a percentage of Hardware merchants in the State belonged to the association.

A valuable paper on "Successful Advertising," read by O. W. Johnson of Marshall, was followed by an interesting discussion in which a score of members told of the trade-bringing value of advertising campaigns which they described. This discussion alone was characterized by one member as worth all it cost to attend the meeting.

At the afternoon session Missouri garnishment laws, Paints, Furnaces, Stoves and Builders' Hardware were discussed, the session developing into a testimony meeting in which most of the members took part. F. P. Haus of Iberia read a paper on "Stoves" which contained much valuable information.

The body adjourned early in order to permit its members, in groups of three or four, to visit Hardware merchants in the city, as well as in Kansas City, Kan. This work was done systematically, the cities and surrounding suburbs being districted and each committee charged to cover a stated district and to secure application for membership and the attendance at the convention of the merchants visited.

A banquet was served at the Coates House in the evening, the hosts being the local jobbers and retailers. The set speakers, introduced by George H. Bunting, toastmaster, were Colonel John Conover on "Early History in Hardware," Milton A. Wengert on "Hardware Today," John M. Townley on "System in Hardware," H. J. Bruner on "The Hardwareman," W. T. Cooper on "For Whom Are We Building?" Frederick Neudorff on "Organization," Taylor Frier on "Missouri Hardware Association." After the set programme some twenty members and traveling men were called on for impromptu addresses.

Kentucky Retail Hardware and Stove Association.

(By Telegraph.)

THE KENTUCKY RETAIL HARDWARE AND STOVE DEALERS' ASSOCIATION is now in annual convention at Louisville, the opening session being held on Tuesday morning. Kentucky, like her sister States, whose Hardware merchants are bonded together for mutual business progress, is an exponent of what may be accomplished in the steady development of an association when ably managed and directed by efficient officers, who in turn receive direct and earnest co-operation from their brother members.

The representation at this, the sixth annual convention of the association, shows a liberal increase over previous meetings. Over 75 members were assembled at the Galt House on Tuesday, and many others are expected on Wednesday. There are also a goodly number of exhibitors present; in this respect, too, all former conventions of the State Hardware Association are being eclipsed.

Tuesday morning was given over to exchange of greetings, payment of dues and distribution of badges. In the afternoon the convention was formally called to order by President J. C. Frederick of Owensboro, who extended greeting and introduced Mayor P. C. Barth, who expressed his pleasure in welcoming the members to Louisville, adding that if for any reason any member were dissatisfied with his place of residence Louisville would open its gates to him, as it now stands in the front rank of the cities of the United States in building operations and active development in all phases of trade. U. S. Shacklett of Fulton, who is also Mayor of his city, fittingly responded to Mr. Barth.

President Frederick in his annual address spoke of the success which has attended the efforts of the association in correcting abuses affecting the retail merchant. He asserted that through friendly co-operation and non-recognition of petty jealousies more good would accrue to the Hardware merchant than an insistent warfare against other influences he is now fighting.

The annual report of Secretary John R. Sower, Frankfort, showed an increase in membership during the year of 17, and new registrations at the convention will probably bring the total up to 125.

J. J. Staska has succeeded Staska Bros., at Weston, Neb., in the retail Hardware, Stove, Tinware, Agricultural Implement, Paint and Harness business.

New York State Association.

THE fourth annual convention of the New York State Association of Retail Hardware Merchants began its sessions at the Hotel Bennett, Binghamton, N. Y., on Tuesday, February 20. The forenoon was devoted to a business meeting of the directors, the enrollment of new members, payment of dues, &c., and the completion of arrangements for the convention. The opening session was held in the afternoon at 2 o'clock, when an address of welcome was given by Hon. H. H. Woodburn, mayor of Binghamton, to whose very cordial and happy greeting the president, Charles P. Sherwood, responded in a brief and felicitous address. It was evident thus early that the attendance on the convention would be large and representative, the indications all pointing to a very successful gathering. The president's address was then presented, in which reference was made generally to the work of the association and the circumstances of their coming together. R. R. Williams, Hardware editor of *The Iron Age*, spoke upon "Trade Tendencies," and was followed by H. Jason Knapp, whose subject was "Just a Little Nonsense." M. L. Corey, secretary of the National Retail Hardware Association, entered during the session and was cordially greeted. The evening was devoted to stereopticon views, explained and enforced by Mr. Corey. They related to the progress which has been made in retail organizations and what has been done by the Catalogue House Committee, with a view to combating the evils of catalogue house competition. A variety of facts and figures in tabulated form were thus brought to the attention of the convention.

The sessions will continue during Wednesday and Thursday, the programme calling for the discussion of a number of interesting and important topics. The Wednesday morning session will be devoted to the Question Box, which will be in charge of M. L. Corey. The Committee on the Question Box, consisting of L. G. Mattison, Newark; William Fowler, White Plains, and Irving Van Voorhees, Cobleskill, has given much thought and attention to the arrangements for the Question Box, with a view to securing an interesting discussion of practical and important questions.

Correspondence.

The Western Heavy Hardware Catalogue.

To the Editor: Referring to "Ed. Ford's" article published in your issue of February 1, all of the members of the Heavy Hardware National Association were not in favor of a universal catalogue. Many of them did not sanction the method of raising funds, and still more of them objected to the name of the association being used in presenting the matter to the manufacturers. A number of letters were written by individual members to the secretary in protest. The result of these letters was a divorcement of the catalogue contingent from the association, and we believe that this is the understanding of the majority of its members to-day.

We have opposed the proposition from its inception because we believed it impractical.

First, because it destroys the individuality of firms and companies engaged in the heavy hardware business.

Second, because the book would necessarily contain many items not wanted by the individual subscriber.

Third, because it would be a detriment to both manufacturer and jobber, as well as retail dealer.

If the catalogue was compiled to meet the wants of all, many nearly identical lines of different manufacturers would be shown, and consequently orders would be received by the jobber for goods which he does not carry in stock. Unpleasant complications would arise which would be an injury to all concerned.

To illustrate: The catalogue describes a line of forges and blowers made by three different manufacturers. Each of them makes a line of sizes and patterns nearly identical; if not identical they are, at any rate, intended for the same purposes. We carry the line made by Manufacturer No. 1. We receive an order for an article made by Manufacturer No. 2. We naturally want to sell the line we carry, and consequently we write our customer explaining the superior advantages of line No. 1. By this act we have done the manufacturer of line No. 2 an injustice. We have delayed our customer and possibly lose the order and the customer's future business.

Notwithstanding the foregoing views, we think Mr. Ford does the association, its individual members and the catalogue *personnel*, a vicious injustice in impugning their motives. The members of the Catalogue Committee are high minded gentlemen, who were sincere in believing the manufacturers who favored the proposition would be well remunerated.

A MEMBER OF THE ASSOCIATION.

COMING HARDWARE CONVENTIONS.

The following conventions of Hardware Associations will be held during the next few weeks:

CONNECTICUT RETAIL HARDWARE ASSOCIATION:

Third Annual Meeting at New Haven, February 27 and 28. Membership 65, about two-thirds of the Hardware merchants of the State. President, Chas. G. Agard, Torrington; secretary, James De F. Phelps, Windsor Locks.

OHIO HARDWARE ASSOCIATION:

Twelfth Annual Meeting at Canton, February 27 and 28 and March 1. Headquarters and Exhibits at Auditorium Building. President, John F. Baker, Dayton; secretary, Frank A. Bare, Mansfield.

MINNESOTA RETAIL HARDWARE ASSOCIATION:

Tenth Annual Meeting at Minneapolis, February 28 March 1 and 2. Headquarters at Nicollet House. Membership 690, an increase of 45 since last meeting. President, A. T. Stebbins, Rochester; secretary, M. S. Mathews, Boston Block, Minneapolis.

NEW ENGLAND RETAIL HARDWARE ASSOCIATION:

Thirteenth Annual Meeting at Boston, March 1 and 2. Headquarters and Exhibits at Hotel Vendome. President, J. B. Hunter, Boston; secretary, F. Alexander Chandler, 36 Federal street, Boston.

PENNSYLVANIA WHOLESALE HARDWARE AND SUPPLY ASSOCIATION:

Annual Meeting at the Hotel Astor, New York City, March 7 and 8. President, H. L. Raub, Lancaster; secretary, John Waeldin, Canton.

CALIFORNIA STATE RETAIL HARDWARE ASSOCIATION:

Fifth Annual Meeting at San Francisco, March 14, 15 and 16. President, H. C. Bennett, San Francisco; secretary, Henry Gracey, 235 Powell street, San Francisco.

NATIONAL RETAIL HARDWARE ASSOCIATION:

Annual Meeting at Chicago, March 20, 21 and 22. President, W. P. Bogardus, Mount Vernon, Ohio; secretary, M. L. Corey, Argos, Ind.

CONVENTION NOTES.

The Executive Committee of the New England Hardware Dealers' Association held its regular monthly meeting at the rooms of the Boston Merchants' Association on the 6th inst., President John B. Hunter in the chair. Nine new members were admitted. The plan for the annual convention on March 1 and 2 was announced. The programme provides much in the way of instruction and entertainment for those who will be present. We are advised that manufacturers are exhausting the available space for exhibits. A large and representative attendance of merchants and manufacturers is expected, and the convention promises to be a most successful one.

Frank A. Bare, Mansfield, secretary of the Ohio Hardware Association, reports that the exhibit feature of the coming convention has already assumed much larger proportions than expected. The committee arranged for additional space, but still has been unable to

supply the demand. Many manufacturers and jobbers have applied for space but could not be accommodated.

The attendance of retail merchants, jobbers and manufacturers promises to be much larger than at any previous convention.

The business sessions of the convention of the Connecticut Hardware Association, at New Haven, February 27 and 28, will be held at the Chamber of Commerce, the hotel headquarters being the Davenport, Orange and Court streets. Among others who will address the convention are W. P. Bogardus, president of the National Retail Hardware Association; T. James Fernley, secretary-treasurer of the National Hardware Association, and W. B. Simpson, secretary of the National Hardware Dealers' Mutual Fire Insurance Association. A number of prominent Hardware manufacturers will also make addresses. In the way of entertainment, a theater party will be given on Tuesday evening, and on Wednesday afternoon the association dinner will be held.

TRADE ITEMS.

THE SHELBY SPRING HINGE COMPANY, Shelby, Ohio, is making exhibits at some of the larger retail Hardware conventions. The exhibit consists of a full-sized door mounted on Shelby Chief double acting floor hinges and a large board with sign reading "Shelby Hinge Company," the letters being formed from the company's stamped steel finished Hardware. There is also a line of small mounted boards, together with samples and mounted floor hinges. As a souvenir the company is distributing a celluloid pocket memorandum book.

THE LUDLOW-SAYLOR WIRE COMPANY, St. Louis, Mo., has removed its general offices from Fourth and Elm streets, where they have been located for a number of years, to its factory at 600-630 South Newstead avenue. A handsome suite of offices has been fitted up at the factory and the new arrangement will enable the company to look closer after the requirements of its customers. On or about March 1 the sales department will be removed from Fourth and Elm streets to 1105 Locust street.

THE co-partnership heretofore existing between Edgar W. Baird and Robert R. Smith, trading under the name of General Specialty Company, Arcade Building, Philadelpha, has been dissolved by mutual consent. A corporation has been formed under the laws of Pennsylvania, under name of General Specialty Mfg. Company, to which all of the assets and property of the former copartnership have been transferred, and which has assumed and will pay all of the liabilities.

LUFKIN RULE COMPANY, Saginaw, Mich., manufacturer of tapes, rules and various other measuring devices, has removed its London branch for handling the foreign trade from 48 Lime street to 24-26 Holborn, London, E. C., in the Buchanan buildings, where the company has greatly improved facilities for transacting an ever increasing business. The premises are close to the Chancery Lane station of the Central London (Tube) Railway.

THE NOX-EM-ALL COMPANY AND THE NOVELTY TOOL COMPANY of Syracuse, have been incorporated as the Empire Specialty Tool Company, with factories at Syracuse, N. Y. The new company has a capital of $100,000, with officers as follows: E. Dinsmore Woods, president; E. F. Slack, vice-president; Gustave A. Lanzke, secretary-treasurer, and William A. Hyle, general manager. The company will manufacture the Nox-Em-All line of Tool Specialties, which are made from the New Era process steel, special attention being called to its patented Grass and Sheep Shears. All correspondence should be addressed to the New York office of the company, 299 Broadway.

THE EBERHARD MFG. COMPANY, Cleveland, Ohio, has bought the plant, stock and good will of the Racine Malleable & Wrought Iron Company of Racine, Wis. The rumors to the effect that this transaction was concluded by a group or syndicate of buyers are incorrect. The purchase was made by the Cleveland concern alone and for its own exclusive use in connection with its increasing Northwestern business.

THE MILLERS FALLS COMPANY, Millers Falls, Mass., manufacturer of Mechanics' Tools, has absorbed the business of the Langdon Miter Box Company, also of Millers Falls, and will manufacture the Langdon Miter Box. This Miter Box has been mannfactured for 34 years, and since 1876 the works have been located at Millers Falls. At the recent meeting of the Millers Falls Company it was voted to increase the capital stock from $200,000 to $300,000.

SNOW SHOVELS AND BROOMS.

BY F. B. M.

THE snow man here illustrated is formed out of cotton covered with Snow Sparkle and the hands are made of white cotton gloves, stuffed and tied fast. The eyes and mouth are made with daubs of black ink. The Shovel and Broom are taken from stock, and the best background is black paper muslin with the glossy side out. The whole design is braced and made over three invisible wires, placed just 30 inches apart and suspended from screw eyes fastened securely to the ceiling of the window and extending down to similar fastenings in the flooring. As it is essential that the wires should be very

Snow Shovels and Brooms.

taut they can be interposed with Turn Buckles, using those which are sold for the rods of Buck Saws.

A circular socket for the end of the Broom Handle can be formed by the use of Wire Nails, driven part way in the flooring; and two Nails should be driven on each side of the Shovel to prevent its slipping. The Shovel and Broom are then tied respectively to the two outer wires at a point where the hand grasps them, and heavy twine should then be extended up to the central wire, thus forming the framework for the arms. Around this twine wrap loosely some old newspapers until about the natural size of an arm is obtained and fasten by a band of twine here and there.

Paper is rolled up to form the legs, body and head in like manner and tied fast to the central wire. The paper is covered by wrapping around it sheet or cotton batting, which can be tied with thread or pinned fast.

Our Brooms will clean the trolley track,
And Shovels will throw Snow further back.

A show card similar to the above can be placed in a conspicuous position to call special attention to these articles.

P. O. Department and Parcels Post.

WASHINGTON, D. C., February 21, 1906.

THE Postmaster-General and the Third Assistant have come out frankly in a published statement, with a declaration that the proposed consolidation of printed matter and merchandise at 8 cents per pound, which is just one-half the present merchandise rate, is designed as "a parcels post system to a certain extent," and that after this entering wedge has been introduced "the weight limit may be increased and the rate of postage may be still further decreased later."

The significance of these statements cannot be overestimated, and retail hardware merchants in all sections of the country should lose no time in communicating with their Senators and Representatives in the effort to prevent the incorporation in the pending Post Office Appropriation bill of this apparently harmless but really exceedingly dangerous consolidation scheme.

The agents of the Postal Progress League and other so-called postal "reformers" are greatly pleased with these declarations and are actively at work bringing pressure to bear upon the House Post Office Committee to induce it to adopt the consolidation plan.

The Postmaster-General's Statement

is in part as follows:

I have asked for the consolidation of third and fourth class rate of 1 cent for 2 ounces for books, boots and shoes, dry goods and other merchandise, and newspapers and periodicals in wrappers, which means a parcels post system to a certain extent. The weight limit may be increased, and the rate of postage may be still further decreased later. Those are matters which require very serious consideration. The limit of weight in our foreign parcels post service is 11 pounds—I never understood why, but of course there was some good reason for not making it 10 pounds or 12 pounds, as would be natural for practical Americans to do.

Of course we need a parcels post service in this country, but there are a

GOOD MANY PERPLEXING QUESTIONS

involved in the proposition which the public does not understand. To establish and maintain in a country like the United States, where distances are so great, and the Government is committed to a uniform rate of postage regardless of distance, would undoubtedly involve either high rates of charges or we would have to call upon Congress for a deficit for several years at least. It would be difficult to compete with thoroughly organized express companies, who regulate their charges according to distance as well as to weight. If we should go into the business we would get all the long distance packages and would be compelled to carry them at a loss, while the express companies would underbid us for the short distance parcels. If we are to have an effective parcels post system it should be organized on the same lines as the express service, with rates similar to those charged in other countries, and regulated so as to meet the charges of the express companies.

GRADUAL EXTENSION.

For these reasons it was not deemed wise to recommend Congress to authorize a parcels post system at present, but I did make an earnest recommendation that third and fourth class mail matter be merged, and that the postage be reduced to the rate of 1 cent for 2 ounces. This can be done without reorganizing the service. All parcels of merchandise not exceeding 4 pounds in weight can be carried as usual in ordinary pouches and sacks at one-half the rate now charged, which will be sufficient to reimburse the Government for the actual cost of carriage and afford great convenience to thousands of people at multitudes of places that are not now reached by the express companies. We can gradually extend the system, and in the event of favorable action by Congress on the general question of a parcels post we could introduce an experimental service in certain territories, as between Chicago and various points in the adjacent States.

There is no doubt that public sentiment is in favor of parcels post, although village merchants are likely to oppose it for fear it will interfere with their trade by enabling their customers to do shopping through the mails. There are several propositions now pending in Congress for a parcels post. Several bills have been introduced into both houses for a reduction of postage on merchandise and for an increase of the weight limit.

A Warning.

In this statement the Post Office Department for the first time frankly admits that the proposed consolidation of third and fourth-class mail matter is intended as an entering wedge for a domestic parcels post. The statement that "the weight limit may be increased and the rate of postage may be still further decreased later" is a warning that no merchant with an eye to his own interests can afford to ignore. Whether the Postmaster-General has in mind an ultimate limit of eleven pounds, which is the limit of the international parcels post, is not disclosed, but that it is proposed to increase the limit later on is obvious.

General Madden's View.

Third Assistant Postmaster-General Madden also regards the proposed consolidation of third and fourth-class mail matter as equivalent to the establishment of a parcels post on a small scale. He says:

It is physically impossible for carriers to handle any more mail than they do to-day. We cannot burden them any more than they are burdened now. Therefore, if we go into the parcels post business we must organize practically a new series of carriers, with additional offices, wagons and horses for collection and delivery. This will mean a revolution in the service and the expenditure of an enormous amount of money, which will not be repaid by the postage collected so long as the rates are uniform without regard to distance. If the zone system of rates is adopted the administration of the service would be very much complicated. However, by the consolidation of third and fourth class matter and the adoption of the third-class rate we will be able to do a little parcels post business, which can be extended from time to time as experience teaches us and the facilities are acquired.

We propose to wipe out fourth-class matter entirely and have only three classes, as follows:

First-class, letters and postal cards, at the present rates.

Second-class, newspapers and periodicals, at the present rates.

Third-class, everything else that is mailable—1 cent for every 2 ounces and fraction thereof up to 4 pounds, the limit of weight now fixed.

At present we can send 11 pounds of merchandise to Germany by parcels post at the rate of 12 cents a pound, or less than 1 cent an ounce. Under the proposed consolidation we can send across this country 4 pounds of merchandise for 8 cents a pound. That will serve a great many of the necessities and will be a great convenience to the farmers and other classes who want to do their shopping by mail.

As an Offset to These Declarations

by the high officials of the Post Office Department, Representative Overstreet, chairman of the House Post Office Committee, has given out a brief interview. His statement is that of a practical business man who takes a broad view of things and does not permit his judgment to be clouded by visionary schemes. Mr. Overstreet says he is against the parcels post, without regard to its form, and adds:

Nor do I think it is needed at present. We are getting along very well as it is, and other reforms and facilities are much more imperative. We should do something to bring the receipts and expenses of the post offices nearer together than they are at present. We should reduce the burden of the second-class matter, and make newspapers and periodicals pay their share of the expense of handling the mail, because they now make 72 per cent. of the weight. We should extend the pneumatic tube service in our cities, which is a great economy of time and labor, and should increase the salaries of our carriers, which have not been advanced for years and do not correspond with the increase in the expense of living.

It Is Earnestly to Be Hoped

that Mr. Overstreet's sentiments here expressed will be reflected in the text of the annual Post Office Appropriation bill, which is now being completed by his committee. It can be stated that the committee has declined to incorporate in the bill any of the recognized parcels post measures and it is believed that the consolidation project will also be rejected before the measure is reported to the House. Of course it will be understood that the influence of the Post Office Department is very strong, but retail merchants should bear in mind that any such amendment added to the appropriation bill will be stricken out in the House upon the objection of a single member, as the rules require unanimous consent to add new legislation to an appropriation bill.

Merchants will therefore consult their own interests in requesting their Representatives in Congress to keep a sharp eye on the Post Office Appropriation bill and make the "point of order" against any parcels post amendment that may be incorporated therein. W. L. C.

B. S. GREEN, Harness manufacturer and wholesale Harness and Saddlery merchant, Bloomington, Ill., has purchased property adjoining his present building and will erect a five-story addition, 44 x 68 feet. A portion of the new structure will be let to other tenants.

Indiana Retail Hardware Association.

THE marked enthusiasm and interest manifested in the proceedings of the seventh annual convention of the Indiana Retail Hardware Association, held at Indianapolis February 14 to 16, was indicative of the growing appreciation of organization work by the retail Hardware merchants of the State, and the membership at the close of the meeting nearly totaled 600, as compared with 475 before the convention opened. The attendance at some of the sessions, including members and their guests, was estimated at 800, and salesmen, manufacturers and jobbers as well as retailers participated in the discussions. These were productive of many valuable and practical suggestions from widely differing viewpoints and were of educational value to the productive side of the trade as well as to the distributing.

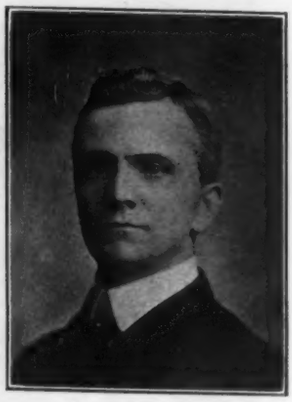
The meetings were held in Tomlinson Hall, where the exhibits, numbering over 100, were gathered in the balconies and corridors. The constantly increasing number of displays at these gatherings indicates the growing appreciation of the value of these conventions by manufacturers as well as jobbers, and an exceptional opportunity is afforded of cementing a feeling of friendship with the buyer as well as making the displays a source of profit in the introduction and sale of new goods and specialties.

While the catalogue house, parcels post bill and mutual fire insurance were the subjects of animated discussion that will aid the merchant in the conduct of his business, many of the suggestions, if adopted by the merchants, will indirectly prove potent factors in combating the untoward influences which are now throwing the distribution of Hardware lines into illegitimate channels.

A. N. SHIDLER.

M. L. COREY.

E. M. BUSH.



SHARON E. JONES.

President Shidler's Address.

The first session was called to order on Wednesday afternoon by President A. N. Shidler. "America" was sung to organ accompaniment and three rousing cheers were given for Old Glory. Mr. Shidler was then presented with a handsome gavel, suitably inscribed, as a token of esteem by the members of the association. The first order of business was the president's address, which we give below in part:

We have gathered here to learn the Hardware business from one another and from our friends the manufacturers, jobbers and their representatives, together with their elaborate displays. We are busy men, have left our business for a short vacation to renew acquaintances and shake the hand of the brother from the other end of the State, to interchange ideas, pick up new thoughts and carry them home to apply them in our own business.

Come, let us learn, one from the other. You have some method or principle which you have applied successfully in your business. Now don't be selfish. Out with it and help your brother to success. We have in our very midst displays and representatives from all the leading jobbers and manufacturers in the United States, an opportunity of education never afforded you before. I hope none of you will neglect to take advantage of it and visit every display in this auditorium.

PARCELS POST AND CATALOGUE HOUSES

are the two great evils confronting every retail Hardware merchant. We in our association work have been constantly discussing ways and means among ourselves with not only the catalogue house and farmer as our opponents, but probably our greatest obstacles and those who have done more to foster these movements are those who should be our best friends, the jobber and manufacturer.

First, the jobber nursed the cataloguer and supplied his wants so long as he could do it at a profit and keep the facts from the retailer; then the manufacturer whose goods had not already been supplied began to get uneasy because his name did not appear between the covers of such immense catalogues and he sought their patronage until now nearly every well-known brand of Hardware is listed.

Only too late did these now good friends of ours discover that there were Hardware retailers and that their requests ought to be given ear, when about two years ago one of the leading jobbers through a letter to *The Iron Age* ignited the fuse and the bomb exploded, the result of which was the appointment of the Joint Catalogue House Committee, a report of which we shall hear.

Now the manufacturer says the jobber is responsible for the present condition and the jobber holds it up against the manufacturer.

P. O. MATTERS.

During the year just closed some important postal decisions affecting catalogue houses have been made. In April it was decided that nothing but mail, and that properly stamped, should be placed in United States mail boxes. This prevented the distribution of catalogues by rural free delivery men after they had been shipped by freight to the home of the Government employee.

On October 4 Assistant Postmaster-General DeGraw ordered that the delivery of mail on rural routes should be by box number only and that the postmaster issue, without charge, lists of numbers of all persons receiving mail on routes issuing from his office. A little later, when Postmaster-General Cortelyou reached Washington, 500 protests by mail and telegrams from Hardware merchants and organizations principally were awaiting him. The order was promptly held up.

At the present time, however, the danger is in consolidating third and four class matter at a rate of eight cents per pound. The only excuse for this seems to be the inability of postmasters to distinguish between third and fourth class matter and to overcome this annoyance. The officials would increase this already immense deficit of $22,000,000, build up the catalogue house and eliminate the country merchant.

Now, brother Hardwaremen, it behooves us to keep our eyes on the Hardware reports and should such dangerous rulings again take place be "Johnny on the Spot" with your protest and next time remind the officials that the Hoosier State is awake, and in place of there being 500, let there be 1000 to protest against such injustice.

STANDARD SIZE FOR CATALOGUES.

We hail with open arms the proposition of the

Southern Jobbers' Association to adopt one standard size for all catalogues of jobbers and manufacturers. In ten years hence to glance back at our catalogue cases would be as to compare the Hardware shop of twenty years ago to the modern store of the present.

A POINTER FOR MANUFACTURERS.

If some other philanthropist now should suggest, and the suggestion should be heeded, that manufacturers put up their product in boxes properly glued together, with a cover to lift off without the end breaking out, the Hardwareman's troubles would be fewer. I would suggest here that refusing, as much as is advisable, to buy such articles as are put up in ungainly packages when just as good may be had of other brands will assist largely in improving the condition.

Some of the Visitors

were then called upon to address the meeting and A. T. Stebbins, president of the Minnesota Retail Hardware Association, who had just come into the hall from his home at Rochester, Minn., was introduced to the convention. "It always pleases me to appear before a set of Hardwaremen," he said, "and, furthermore, I can say that I never appeared before a better set than those I now see before me. It has been said by some that Hardwaremen meet, pass resolutions, go home and do nothing. Who of you can foretell what would have happened in the Hardware trade but for our organization? We have a great work before us—one that we should take hold of with vigor and prosecute with vim until it is accomplished." Continuing, he referred to the work accomplished by the national associations of retail druggists and grocers, who are in a position to demand of the manufacturer that none of their product be handled by illegitimate distributers.

President G. R. Lott of the Chicago Retail Hardware Association extended an invitation to the members of the Indiana organization to attend the convention of the Illinois Retail Hardware Association, which meets in Chicago.

Convention Committees.

The following committees were appointed by the president:

GRIEVANCE.—W. M. Hunter, Versailles; W. L. Kiger, Bluffton; M. H. Coates, Kokomo; W. L. Hubbard, Scottsburg; C. F. Boonshot, Petersburg.

EXHIBITS.—C. B. Frame, North Manchester; Albert Duprez, Shelbyville; Chas. E. Hall, Indianapolis.

ADMISSION AND RECEPTION.—C. A. Ellis, Carlisle; M. L. Lewis, Marion; W. B. Creed, New Albany; W. H. Hatfield, Washington; Geo. Staiger, Michigan City; Mr. Weinhart, Terre Haute; T. J. Lindley, Jeffersonville.

NEW GOODS.—S. L. Ocker, Roann; N. R. Stoner, Rochester; A. W. Smith, New Ross.

RESOLUTIONS.—J. L. Fulton, Portland; A. L. Baughman, Wolf Lake; Ed. Gardner, Monticello.

PRESS.—E. M. Bush, Evansville; C. A. Ellis, Carlisle; S. L. Ocker, Roann.

AUDITING.—John Stune, Breman; H. P. Smith, Auro; G. L. Finner, Terre Haute.

NOMINATIONS.—W. L. Hubbard, Scottsburg; M. Hamilton, Brownstown; O. S. Tarbet, Columbia.

Stereopticon Talk.

Preceding a smoker in the evening in Tomlinson Hall, Secretary M. L. Corey delivered a stereopticon talk on the catalogue house question. In his introductory remarks he referred to the organization of this committee designed for the consideration of ways and means of combating the competition of the catalogue mail order houses. Tables of prices of various hardware lines quoted by the catalogue houses, the prices at which they are sold to the retailers and the cost to the retailer proved exceedingly interesting and in many cases the catalogue house price was less than the cost price to the retail merchants. Various phases of the parcels post question in typewritten form were also thrown on the screen.

Secretary Corey's Report.

The Thursday morning session was opened with song as the opening session on the previous day, after which Secretary-Treasurer M. L. Corey submitted his report. The State association was shown to be in a flourishing condition and a healthy growth in membership was reported. Mr. Corey's report was as follows, in part:

THERE HAVE BEEN FEW COMPLAINTS

sent us during the past year. Those we received were mostly in the line of information as to policies of certain firms and this knowledge has been very useful. In several cases, by following this up, we have succeeded in securing better conditions. Several canvassers have gone over the State selling articles of little or no merit to Hardware stores and merchants in other lines. One of them had a powder that was claimed to make gasoline nonexplosive. We are told on good authority that anything that would produce this would so affect the fluid that it would not be gasoline—that gasoline is only safe so long as it is known and treated as dangerous. If this be true we should be very careful in dealing with our customers, and not mislead them by recommending an article that might lead them to carelessly endanger life and home.

Another party had a patent buggy paint for which wonders were claimed, but it really proved little better than the cheap tar roof paints so generally used.

The general prosperity has started out a large number of these quacks, and as more of them are coming our way from other States we think it well to sound the note of warning. Any person exploiting some newfangled wonder, who persists in selling a quantity and delivers it and collects on the spot may well be regarded with suspicion. One thing that often obtains an audience and favorable consideration for them is their practice in obtaining, on some pretext, one of your letter heads, which they produce in some other store with the statement that they have already sold to you, and even in some instances claim that you have been their agent for years. When you turn these fellows down don't give them your stationery that they may influence others who may have confidence in your business ability. Report them to us, and if possible send a sample of what they sell. We can help and protect each other in this way.

MEMBERSHIP.

Our honorary and associate members numbered, in 1905, 117. We have never included them in our actual membership count. If this were done, Indiana would today be very close to the head of the column. We have gained about 100 new members since our last meeting and have lost a few old ones who have sold out or from other causes. During the last five years only four firms have requested that their names be dropped from the membership roll. Some have not paid their dues and for

CHARLES B. FRAME.

WALTER B. CREED.

S. L. OCKER.

C. A. ELLIS.

this reason are out, but we believe that this has been mainly the result of carelessness and not through any dissatisfaction or discouragement. The State Hardware associations are doing good work and they are here to stay; we have gained the confidence of the entire trade and we are growing stronger and more closely united with each succeeding year.

EXHIBITS.

Any one who will look over the displays that are exhibited here will readily realize that no one hotel could accommodate our crowd. In attempting to handle this combination on such a large scale we expected to make some mistakes and receive some criticism. We know this hall is not entirely suited or sufficiently well-arranged to accommodate such a crowd and still afford a suitable meeting place. We can only do our best, having in mind at all times that the success of this convention is the paramount question. Those exhibitors who give us the most consideration and co-operation will be the highest on the list for future favors.

E. M. Bush's Address.

Vice-Chairman E. M. Bush, Evansville, of the Joint Catalogue House Committee, then delivered an able address on the work that is being done by this committee. He said in part:

In reporting to you the work of the Joint Committee for the past year much of what I might say has at various times been given publicity through the trade press and our own organ, the *Bulletin*.

Several members of our committee attended the annual meeting of the Southern Hardware Jobbers' Association last June. Three of the committee, Mr. Dudley, Mr. Norvell and Mr. Bogardus, addressed the convention upon the catalogue house question and Joint Committee work. The absorbing topic of the meeting of this association one year previous had been the catalogue house question brought into prominence by the letter of Mr. Norvell and the Band Wagon Cartoon published in *The Iron Age* a few weeks previous to the meeting, and the addresses of Mr. Norvell, Mr. Simmons and Mr. Bogardus upon this question. The absorbing question of the meeting last June was the report of the committee of the Manufacturers' Association upon special brands and the Southern Jobbers' Association's reply.

YOU ALL KNOW OF THE OPPOSITION

from a few manufacturers to the unanimous desire of retailers and the efforts of the Joint Committee to induce manufacturers of standard goods and brands no longer to sell their products to cataloguers.

We deplore the prominence of the private brand question and its discussion just at this time before the catalogue house question has been fully settled by the manufacturer, jobber and retailer. Those who oppose our catalogue house efforts are loudest in their denunciation of private brands. We believe that the private brand question should be settled between manufacturer and jobber and between jobber and retailer.

NO MANUFACTURER IS COMPELLED

to make goods under a private brand; no retailer is compelled to buy private brands from a jobber unless each shall so choose. The question for the manufacturer to ponder is, Has not the market for private brands grown apace with catalogue house expansion?

During the past year the Joint Committee through its chairman and secretaries has diligently sought to persuade manufacturers to confine the distribution of their goods to the legitimate channels, jobber and retailer, and with marked success. It has won numerous manufacturers to its views, and I am sure your own, on this matter.

All the members of the Joint Committee save one responded to a call of the chairman for a meeting in St. Louis last September. This was an important meeting at which the whole committee was subdivided into seven committees to look after special departments of the work. After thorough discussion we decided to prepare charts or stereopticon plates to present more forcefully to the manufacturers at the joint meeting of jobbers and manufacturers at Washington in November the demoralizing prices of these catalogue houses.

ANOTHER IMPORTANT STEP

taken at this meeting was the decision to publish early in 1906 or as soon as it seemed advisable a pamphlet to be sent to the entire jobbing and retail trade of the country, giving the attitude of manufacturers upon the catalogue house question.

Allow me to say here that this proposed action of the Joint Committee is violently opposed by those manufacturers who decline to meet your views upon catalogue house selling. If a manufacturer insists upon his American born freedom to sell where, to whom and at whatever price he chooses, have we not the same American born right to impart the information to brother merchants? He insists that his decision and act of selling where he will is just and right, but to tell what he does and thinks is wrong and most unjust. Let him then do what can be told of him without what he calls injustice, for surely if there is no injustice to the retailer in this manufacturer's selling to catalogue houses there can be no injustice to the manufacturer in the retailer's knowing the fact.

IT WAS GRATIFYING TO THE COMMITTEE

to note from the catalogues which had just been issued by the leading mail order houses that many important manufacturers had withdrawn their lines from them entirely; while others had compelled prices that afforded the retailer a better profit than formerly.

After disposing of other matters of importance the committee adjourned to meet in Washington in November. At that time three retail members of the committee assisted in the presentation of our cause before a meeting of the jobbers to which the manufacturers were invited. Great interest was manifested in the meeting and a great number was in attendance. Naturally some criticism followed the stereopticon display of goods and prices but chiefly from those whose goods were given prominence in the plates.

For a full and exhaustive report of the committee's work the past year with its trials and successes I would refer you to a letter of the committee through its chairman, Mr. Norvell, published in *The Iron Age* of December 14 last and also published in the January issue of the *Bulletin*. If you have not read it I trust you will.

I need not bespeak for the chairman and two secretaries of the committee your continued confidence and support. They, as well as Mr. Bogardus, Mr. Miles, Mr. Ireland and the other gentlemen representing the jobbing interests, are worthy of all trust and confidence, as they are working intelligently, vigorously, conscientiously and unselfishly for the general good. The committee has been ever harmonious and has adopted no policy without thorough discussion and unanimity of action.

Catalogue House Paint.

Before the close of this session Secretary M. L. Corey called attention to the provision in the North Dakota pure food law which prescribes that Paints not showing a certain standard should so be plainly indicated on the package. He then read a guarantee made by one of the catalogue houses on its brand of Ready Mixed Paints which was as follows:

With every gallon of Ready Mixed House Paint we issue a binding five years' guarantee, by the terms and conditions of which we guarantee our Paint to be the highest grade Ready Mixed Paint made, regardless of price, guarantee it to wear under all climatic conditions for at least five years. We guarantee that at the end of seven years it will look better than any other Paint at the end of two years. We guarantee it will not chalk, crack, peel off, rub or blister. We guarantee it will adhere to wood, tin, iron, galvanized iron, stone, tile, cement or plaster; in short, we guarantee it superior to any other Paint made, regardless of price, guarantee it to cover double the surface and last twice as long as any other Paint made.

Mr. Corey produced the report of the Government Agricultural Experiment Station of the Agricultural College of North Dakota made by E. F. Ladd and C. D. Holley on this brand, which showed the following analysis:

Net weight	3 pounds 2 ounces.
Capacity of can	1.01 quart.
Contents	0.96 quart.
Pigments per cent. by weight	63.1
Fluid portion per cent. by weight	36.9
Total	100.0

Fluid Portion.

	Per cent.
Vegetable oil	72.2
Volatile oil	3.8
Water	24.0
Total	100.0

Pigment.

	Per cent.
Lead calculated as white lead	13.85
Zinc oxide	34.88
Calcium carbonate	26.84
Barytes	23.10
Undetermined	1.33
Total	100.00

The contents were thus below the standard measure and the fluid portion contains 24 per cent. of water. The pigment contains 48 per cent. of lead and zinc oxide, while 50 per cent. consists of calcium carbonate and barytes.

The Mutual Fire Insurance

question was the first topic of discussion at the afternoon session. President A. T. Stebbins of the Minnesota Retail Hardware Association said that the Minnesota Hardware Association was organized ten years ago, but did not prosper the first few years, and its rapid growth dated from the time of the organization of the Mutual Fire Insurance Company. At the time of its organization the laws on the statute books of the State made it easy for these mutual companies to incorporate, requiring only a total of $200,000 worth of business, whereas the present statute requires a total of $750,000 to be pledged. The growth of this company is shown by the total insurance now in force, amounting to $2,750,000, and has declared dividends to the policy holders ranging from 25 per cent. the first two years to 40 per cent. this year. The premiums on these risks are the same as demanded by the old line companies and the rebate or dividend represents the saving that can be effected by taking a policy in the mutual. Hardware risks, he said, are preferred risks inasmuch as the general losses of old line companies extending over a period of ten years amounted to 48 per cent., while the Hardware risks aggregated only 29 per cent. of the premiums. Furthermore he said these mutuals operate at a very small expense, the average during the six years that the Minnesota Company has operated amounting to only 12 per cent. of the premiums. He suggested that the Indiana Hardware dealers place a portion of their policies with the Minnesota Company inasmuch as no mutual has been organized in Indiana on account of the laws of that State which make it difficult for mutuals to operate. In Minnesota the law in the past few years has been amended so that the Mutual can also insure the dwellings and household effects of Hardware merchants. The surplus of this company now amounts to $71,000 and an effort will be made to increase this to $100,000, which will be an ample reserve fund.

Fire Losses.

Charles Williams, Streator, Ill., ex-president of the Illinois Hardware Association, who suffered a fire loss some years ago, gave the members some practical hints as to how to proceed in the event of their meeting with a like catastrophe. He said that an entire Hardware loss from fire is very rare and that the salvage as a general thing aggregates a considerable amount of the entire stock carried. Immediately after the fire he stated that he and his assistants proceeded to take care of the stock which had been damaged by water. The shotguns were sent to a competitor, where they were carefully cleaned and oiled and the cutlery was cleaned and dried by heat. The goods touched by fire, however, proved to be practically worthless, although the other stock damaged by water proved to be valuable salvage. He pointed out the necessity of making an inventory of the stock at least once a year and to this inventory should be added all purchases made from time to time and a record of all the gross sales should also be kept. After the insurance was adjusted the salvage proved to be very salable and had to be disposed of before repairs could be made and a new stock of goods placed in the store.

C. W. Asbury's Address.

C. W. Asbury, vice-president of the American Hardware Manufacturers' Association, spoke briefly in part as follows:

The manufacturers are deeply interested in the welfare of the retail Hardware merchant. Our interests are almost parallel with yours and while the jobbers are the immediate friends of the manufacturers, we do not overlook the fact that you are the ultimate distributers and that your interests are our interests. No feeling of enmity should exist between the manufacturers, jobbers and retailers and it does not make any difference who is to blame for conditions that are undesirable in the trade; a united front should be presented and all interests should work in harmony. The three can be brought together by a spirit of fairness and I want to assure you that the manufacturers are with you in this fight.

Question Box.

Among the questions brought up for discussion under this head were the following:

Which can you neglect with least loss—the buying or selling part of your business?

One of the members was of the opinion that the selling part was more important than the buying and required the most attention inasmuch as without intelligent salesmen and salesmenship goods, no matter how well bought, could not be sold at an advantage. Another believed in the old adage that "Goods well bought were half sold."

Should clerks be consulted in buying goods?

The members who discussed this question were of the opinion that it would be advisable for the clerks not only to be consulted, but for the salesmen representing the manufacturer to explain the merits of the article, so that in selling a customer they are in position to point out the merits of the article.

In selling goods should the price alone be considered?

Discussing this, one of the members said that if you have the best article in the market talk quality and not price; create a desire for that article with your customer; after he is convinced of the value of the goods then give him the price. If you are selling a cheap article, state the price and let it go at that. Aid the manufacturer in maintaining the price of his article and on the other hand the manufacturer should aid the merchant by setting a price at which the article can be sold at a profit. One of the manufacturers explained that he only fixed a minimum price at which the article was to be sold but that the retail merchant could sell it at as much above that minimum as he desired.

What is the average per cent. of profit of the retail merchant?

By M. L. Corey: "Some time ago I sent circulars to retail merchants asking them to state what they considered a fair per cent. of profit on which to carry on their business. Some of the replies stated as high as 40 per cent., while others were as low as 7 per cent., but these were extreme cases. A fair average showed a profit to be 20 per cent."

Do you make your cheap or your best goods carry the greatest per cent. of profit?

The consensus of opinion among those who discussed this question showed that the best goods should carry the largest per cent. of profit and the cheaper goods the smallest percentage. From inquiry by the secretary it was shown that on articles that often cost the Hardware merchant one cent and perhaps less than one cent as high as five and ten cents was asked, whereas the catalogue houses listed these articles at two cents and racket stores sold them at three cents. It was suggested that the retailer sell these goods on a comparatively small margin.

Do you give personal attention to marking goods or leave it to clerks?

Opinion was greatly divided on this inquiry, but a canvass of the members showed that most of the merchants marked the goods themselves.

Is it advisable to extend credit to those who send away for goods?

One of the members explained that the fight was not being waged against the man who buys from the catalogue house but against the man who runs the catalogue house. He added further that it has been his experience that purchasers of catalogue house goods when they find they did not wear or come up to guarantee said nothing and on the other hand when purchased from the legitimate retailer an immediate demand was made to replace or repair the same.

Entertainment.

At the close of this session the members and their guests made a tour of inspection of the warehouse of the Van Camp Hardware & Iron Company where buffet lunch was served. During the luncheon Mayor C. A. Bookwalter of the city of Indianapolis welcomed the guests and extended them the freedom of the city.

In the evening a vaudeville show was given at Tomlinson Hall by professional talent then appearing in the city.

Good Salesmanship.

The subject of good salesmanship was discussed at the closing session on Friday morning by members and manufacturers' salesmen and many practical points of value to the retailer were brought out.

PAINTS.

Charles B. Frame talked on the subject of selling Paint. He said that in offering Paint to the consumer he talked quality and not price, inasmuch as high grade goods gave better satisfaction and would be longer remembered by the consumer than price.

E. L. Shuey, representing the Lowe Brothers Company, Paint manufacturer, said that most men fail in the selling side of their business. He continued:

The first consideration to be remembered by the Paint merchant is the knowledge of the Paint he handles and a firm belief in its quality. The seller of the best advertised goods in the country says that if you do not love your goods get out of the business. In selling Paint do not cut prices. The greatest mistake a merchant can make is insisting on a sale. If you cannot get your price do not sell. Success is attained by the Paint merchant that advertises and not by the advertiser who sells Paint. The latter include the large number of stores that handle any grade of Paint as a side line and merely for the profits they offer. Furthermore, teach your clerks your business. I am a firm believer in a clerks' school. Teach your customer what a good Paint should do. When advertising Paints tell what they will do and not what they are made of, as the customer is not interested in the latter, but is vitally interested in knowing what the goods will do for him.

STOVES.

"How I Sell a Stove" was the subject assigned to Irving A. Sibley, who spoke in part as follows:

In selling goods three important factors are to be considered—faith, honesty, earnestness; faith in the article you have to offer the customer; a belief that the article you sell is worth all that you ask for it. In selling a Stove we dwell on the superior points of the article we have to offer, but never refer to the goods sold by our competitors. It is preferable to lose a sale than to misrepresent an article. When I first became a clerk in a store in 1886 this maxim was firmly impressed upon me and ever since I have insisted that my employees follow this to the letter.

W. T. Leckie, a Stove salesman for the estate of P. D. Beckwith of Dowagiac, Mich., said that in order to be a successful commercial man he should know his goods and he ventured the opinion that no commercial man could be successful who did not know and believe in the article that he sold. Continuing, he said:

I believe that the greatest education of the merchant is a traveling salesman. The average traveler is not a bad fellow. Listen to his story and you will always learn something. He can tell you things that will help you in your business. Teach your clerks to talk quality. Teach them the merits of the goods and let them know that it is more creditable to sell a high-priced article than a cheap one. I believe that the retailer advertises the catalogue house entirely too much. I have seen advertisements in papers in small towns in which the merchant guaranteed to sell lower than certain catalogue houses. By so doing he only called attention to the evil which he hoped to counteract. Educate the trade to something better than the cheap trash offered by these concerns.

CUTLERY.

E. H. Sutton, sales agent of the National Cutlery Company, Detroit, Mich., talked as follows on the "Sale of a Pocket Knife":

I appreciate that selling a Knife or in fact Cutlery of any kind is a hard proposition. The consumer is compelled to take the merchant's word for the grade of the article he is offering, as practically nothing of its quality can be ascertained from a superficial examination. It would be of inestimable value for the merchant and his clerks to have a knowledge of the manufacture of all kinds of Cutlery; to be able to tell the trade whether the Knife or any other article was merely blanked out of steel or whether it was forged. I am free to say that oftentimes the finish of the blanked article is superior to that made of high grade forged steel. To talk intelligently on these points a knowledge of manufacture is necessary. Quality should be impressed upon the consumer and while it is true that the cheaper lines undoubtedly keep the business going, the good goods and high grade specialties make the profits. Competition in all lines to-day is keen and as a rule a buyer gets just about what he pays for. Talk quality and you will have a satisfied customer.

HOLIDAY GOODS.

"How I Sell Holiday Goods" was the topic discussed by E. M. Bush, who detailed his first experience in a new location in a city of about 50,000 inhabitants, where he had purchased a store during the fall months, and his first holiday season in his new location gave birth to the idea which he has since been working on and hopes to elaborate from year to year. It had always been his experience that the month of December ranked with the months of July and August as the worst month of the year.

He continued:

It made me sick to see the throngs passing my store and I conceived the idea of impressing on the people that we also had articles suitable for holiday gifts and that we desired a portion of their holiday patronage. You would not believe that a washing machine would be considered a holiday gift; still there are some to whom a washing machine is a luxury and greatly appreciated as a gift. The following season I prepared for the holiday trade early in October and commenced a systematic advertising campaign calling attention to the goods I had to offer which would make useful and practical gifts. I advertised Pocket Knives, Scissors, Safety Razors, Cutlery, Silver Plated Spoons and Flat Ware, Washing Machines, Wringers, &c., and have since added to my line until I am now carrying house furnishing goods. The nickel plated ware which I carefully and conspicuously display brightens up the store immensely and as a result the month of December has grown to be the second best month in the year.

THREE POINTS NECESSARY.

H. W. Beegle of the Rochester Stamping Company, in continuing the discussion stated that there were three points necessary in salesmanship—namely, confidence, education, concentration. "No dealer should try to sell anything that he has no confidence in," he added. In discussing the point of education he said that he had occasion some time ago to examine some Pocket Knives at a Cutlery counter. A young lady was in charge and he asked the price of the Knife. She replied: "Fifteen cents." In the meantime she continued chewing her gum and looked blankly into space. I asked the price of another Knife and she replied: "Twenty-five cents." "What is the difference?" I asked. To which she replied: "Why, 10 cents." In explaining the point of concentration he took for his examples two show windows such as nearly every Hardware store has available. He desired to bring out the point of concentrating displays on certain lines of goods. In one window he would display a sign "Before the Wedding." In this window he would place such lines as would make handsome and desirable gifts. In the other window he would display a sign "After the Wedding," and would show such goods as Washing Machines, Wringers, Kitchen Utensils, Stoves and other household furnishings.

HOW MR. JONES DOES IT.

Sharon E. Jones told how he schools his helpers. He said that most of his employees are raw recruits from the farm and not very often are drilled men secured. Others have enjoyed a good education, but in the advancement of his men in the knowledge of the Hardware trade he endeavors to have them learn everything in connection with the business and helps them by giving them opportunities along new lines so that they can learn and be schooled in the various branches of the retail business. He said that he has unloaded much of his work onto his employees and makes them carry the responsibilities. He continued:

We encourage men by giving them every dollar they are worth to us. We further encourage them by systematic promotion. We place men in charge of certain departments where they do all the buying and the selling and they are held responsible for the showing of that department. We furnish each employee with a Hardware journal, which we have sent to their homes so that they can read them at their leisure and we have only a few on file in our store for reference purposes. We

insist upon promptness and regularity in our employees. Let your coworkers know what your goods cost you. If you cannot trust a salesman with the cost price of your goods you had better not continue him in your employ. Too many Hardware merchants attempt to keep everything in their heads and do not give this knowledge to their employees.

We treat every traveling salesman who comes into our store with the same kind consideration and courtesy that we show a prospective customer. He comes in to sell us and to bring us goods upon which we can make a profit; with us he is a blessing. Here I want to touch upon the question of honesty. I know it has been the experience of many of you that goods have gone out of your store that have not been regularly charged and that you have had buyers who have come to you and called attention to your mistake and paid you for them. We have had this experience and we have appreciated the honesty of the consumer.

In dealing with a manufacturer we follow out the same practice. If a larger consignment of goods reaches us than has been charged for, we notify the manufacturer of this fact. If an error has been made in charging the goods to us which would result in a loss to the manufacturer we call his attention to this. We insist upon absolute honesty among our employees and give them a thorough training along this line.

AN EVENING EACH WEEK FOR CONFERENCE.

Nelson Gottsall of the Briscoe Mfg. Company, in closing this discussion, said that salesmanship is a science and that it is to be deplored that clerical forces in most retail Hardware stores do not know their business. He suggested that Hardware merchants set aside a certain evening once a week and devote it to the education of their employees. By the use of the blackboard points could be well illustrated and he was certain that manufacturers would be only too glad to have their salesmen attend these meetings and explain the merits of their articles. In defining salesmanship he said it is the art of persuading the purchaser to buy at a profit that which you have to sell. In summing up he said the merchant in order to succeed should have faith in himself, faith in his employees, faith in his customers and faith in his goods.

Resolutions.

The Committee on Resolutions, composed of Messrs. Fulton, Boughman and Gardner, submitted the following resolutions, which were adopted:

Whereas, It is one of the principal objects of our association to further the interests of the retail Hardware merchant by a union of our strength and harmonizing our efforts,

Resolved, That each and every member make it his special duty to bring at least one new member to our association within the year.

Whereas, It has been demonstrated to the satisfaction of all that the several Hardware mutual fire insurance companies now in operation have established themselves upon a thoroughly substantial and reliable basis,

Resolved, That it is the duty of every member of this association to extend to them his support by taking insurance of them in preference to old line companies, and that we encourage our mutuals by every possible effort.

Resolved, That we are opposed to any legislation seeking to establish a parcels post, and we urge our membership to be watchful and to oppose promptly and urgently by every available means any attempt to establish a system that will be inevitably to the interests of a few instead of many. We feel that much greater and more equitable distribution of benefits will be realized by the people at large by a reduction of letter postage to 1 cent, and we recommend that further reforms of postal systems be directed to that end, instead of a reduction of rates on parcels.

Resolved, That we hereby extend to E. C. Atkins & Co. our grateful appreciation of the handsome souvenir badges so generously and freely provided for one and all upon this occasion, our seventh annual convention.

Whereas, The exhibit feature of this convention has met with unusual approval, be it

Resolved, That we propose a continuance of the policy at our future conventions, with such changes and improvements as will enable us to hold our executive sessions in a separate hall where the members may feel a greater liberty to express their opinions upon the subjects that so vitally affect us.

Resolved, That we hereby extend to the Van Camp Hardware & Iron Company our hearty appreciation of their generous and delightful and beautiful hospitality to the members and friends of this association upon the occasion of the opening of their great new business plant February 15. Their gracious and unstinted courtesy upon this occasion will long be remembered as one of our most delightful and interesting experiences, which cannot but result in further increasing the esteem and value in which we hold the advantages of the peerless Capital City as a source of our supplies.

Resolved, That the thanks of the association be extended to the exhibitors for their attendance, elaborate displays, uniform kindness and courtesy.

A committee representing the exhibitors, composed of C. B. Howland, Will Cumback and D. G. Hughes, presented the following resolution:

Resolved, That we, the exhibitors at the seventh annual meeting of the Indiana Retail Dealers' Hardware Association, thank the officers and members of said association for the uniform kindness and many courtesies to us as exhibitors, and express our hearty approval of the manner and place in which said convention is held.

Old Officers Re-Elected.

The Nominating Committee submitted the names of the old officers for re-election and this action was endorsed by the association. They are as follows: President, A. N. Shidler, South Bend; Vice-President, Chas. E. Frame, North Manchester; Second Vice-President, W. B. Creed, New Albany; Secretary, M. L. Corey, Argos.

The Executive Committee remains unchanged, as follows: C. A. Ellis, Carlisle; A. N. Shidler, South Bend; S. L. Ocker, Roann; M. L. Corey, Argos; E. M. Bush, Evansville.

The following delegates to the National Convention were chosen: A. N. Shidler, South Bend; E. M. Bush, Evansville; S. E. Jones, Richmond; C. E. Hall, Indianapolis; C. B. Frame, North Manchester; C. A. Ellis, New Carlisle; Louis Kinderman, Boonville. Alternates: Fred Bartholomew, Michigan City; J. Schoder, Ft. Wayne; J. T. Gardner, Scottsburgh; Albert DePrez, Shelbyville; W. M. Hunter, Versailles; M. L. Lewis, Marion; Chas. Boonshot, Petersburg.

CONVENTION NOTES.

A. T. Stebbins, the genial treasurer and member of the Executive Committee of the National Association, as well as president of the Minnesota Retail Association, came from Rochester, Minn., to attend the convention. He predicted that the meeting at Minneapolis will be a record breaker.

The souvenir programme, typographically artistic, contained much valuable information regarding the work of the National and Indiana associations. It also contained a list of exhibitors alphabetically arranged, with the location of their exhibits, and this feature was much appreciated by the visitors. M. L. Corey is deserving of much credit for bringing out such a handsome and useful book.

E. H. Sutton, manager of sales of the National Cutlery Company, Detroit, Mich., distributed 1000 of his "Keep Smiling" cards. This bit of philosophy was much appreciated and was one of the many influences that kept the crowd in very excellent humor.

The display of E. C. Atkins & Co. at the lower end of the convention hall was elaborate and in addition to the full line of Saws there was a practical demonstration of one of their large cross-cuts. Two dummies, which suddenly became animated during the closing session, attracted much attention and the wheeze of the Saw as it made its way through the large hardwood log temporarily interrupted the convention proceedings and elicited much applause.

The new warehouse and office building of the Van Camp Hardware & Iron Company, which was inspected by the association members and other guests, is one of the largest warehouses under one roof devoted to the Hardware trade. This building is of brick and concrete construction, 200 feet square, and contains 360,000 square feet of floor space, approximately 9 acres. Up to a hight of four stories it is reinforced concrete construction and above the fourth floor the building is of the heavy mill type. A sprinkler system protects the entire building and other precautions taken in its construction make it practically fire proof. Among the lines of goods handled by this company are Heavy Hardware, Merchant Iron and Steel, Shelf Hardware, Tin Plate and Metals, Tinners' Supplies and Sporting Goods.

The Briscoe Mfg. Company, Detroit, Mich., gave a banquet to its Indiana agents at the Hotel Dennison, Friday evening.

A number of samples of goods was sent by manufacturers unable to be represented personally and these were

distributed by lot at the close of the convention. So much interest was manifested in the drawing that many of the exhibitors took articles from their displays and a total of 25 prizes was awarded. The distribution was limited entirely to members of the association and the cards bearing the names of the members were drawn from a can by E. M. Bush. Among the articles were a Mounted Stone from the Cleveland Stone Company, Cleveland, Ohio; New Mop Wringer from Dana & Co., Cincinnati Ohio; Food Choppers from the Enterprise Mfg. Company, Philadelphia; Ironing Board, A. E. Langworthy, Atchison, Kan.; Steel Carpet Sweeper, Powers & Williams, Streator, Ill.; Wrenches and Lawn Mower, Whitman & Barnes Mfg. Company, Chicago; Hardware Specialties, West Michigan Machine & Tool Company, Grand Rapids, Mich.; Hand Saws from the Simonds Mfg. Company, Chicago, and E. C. Atkins & Co., Indianapolis.

EXHIBITS.

Every foot of available space in Tomlinson Hall was taken by the exhibitors, whose displays were more elaborate and more numerous than at any of the conventions yet held this year. The exhibits totaled over 100 and in addition there were many manufacturers' representatives present who were active in meeting the Indiana merchants but were unable to secure space to exhibit their goods. As an educational feature the value of these displays cannot be decried and the large number of orders booked by the manufacturers makes their attendance at these conventions a source of profit, and this feature promises to be a growing one in future years. A list of the manufacturers and jobbers represented follows:

E. C. ATKINS & Co., Indianapolis, Ind.: Full line of Saws. Represented by Frank Wells, C. J. Hendryx, S. F. Perrigo, E. W. Springer and H. W. Blair. Souvenir, memorandum book.

AMERICAN STEEL & WIRE COMPANY, Chicago: Field Fencing. Represented by Ira L. Sawin, Jas. A. Boyd and W. H. Kremer.

ARMSTRONG & GRAHAM, Detroit: Harness. Represented by F. H. Joyce and H. A. Lawson.

WM. AYERS & Co., Philadelphia, Pa.: Horse Blankets. Represented by E. R. C. Struthers.

AMERICAN FORK & HOE COMPANY, Cleveland, Ohio: Represented by W. R. Tibbart.

AMERICAN TRUSS POST COMPANY, Bronson, Mich.: Anchor Posts and Steel Gates. Represented by D. Warner.

ALLITH MFG. COMPANY, Chicago: Door Hangers.

BARLER STOVE COMPANY, Chicago: Stoves.

ESTATE OF P. D. BECKWITH, Dowagiac, Mich.: Round Oak Furnaces, Stoves and Ranges. Represented by D. G. Hughs.

BOSS WASHING MACHINE COMPANY, Cincinnati, Ohio: Boss Washing Machine. Represented by E. L. Enneking. Souvenir, court plaster case.

A. BURDSALL PAINT COMPANY, Indianapolis, Ind.: Paints and Painters' Supplies. Represented by A. Burdsall, H. Reed, T. F. Carter, Marshall Moore and A. O. Stevens. Souvenirs, oxidized silver cuff buttons and scarf pins and embossed pocket book.

BRISCOE MFG. COMPANY, Detroit, Mich.: Represented by Nelson S. Gotshall and Frank Briscoe. Stamped Ware and Enameled Ware. Souvenir, pudding pan.

BROWN-MANLY PLOW COMPANY, Malta, Ohio: Cultivator. Represented by E. M. Carter and J. B. Pickett.

BRAND STOVE COMPANY, Milwaukee: Stoves and Ranges. C. A. Kinder in charge.

BAY STATE TOOL COMPANY, Boston, Mass.: Wrenches. Represented by G. H. Schaefer.

H. T. CONDE IMPLEMENT COMPANY, Indianapolis, Ind.: Gearless Hay Loader. Represented by W. Cumback, Jr.

COLE CARRIAGE COMPANY, Indianapolis, Ind.: Buggies and Carriages. Represented by S. S. Helms and J. J. Cole.

COULTER & BEEGLE, Chicago: Revolving Nail Bin.

CHAPPELL FENCE COMPANY, Morenci, Mich.: Fences. Represented by James Triggs.

DOVER MFG. COMPANY, Canal Dover, Ohio: Asbestos Sad Irons. Represented by M. H. Snyder and O. A. Keyser.

DURANT-DORT CARRIAGE COMPANY, Flint, Mich.: Buggies and Carriages. Represented by A. E. Hazel and J. C. Moore.

DODD & STRUTHERS, Des Moines, Iowa: Copper Cable Lightning Rod.

ESTATE STOVE COMPANY, Hamilton, Ohio: Stoves and Ranges. Represented by Sam Kohn, F. T. Mebarry and C. E. Draper.

ECLIPSE STOVE COMPANY, Mansfield, Ohio: Stoves and Ranges. Represented by V. S. Hostetter.

EASY WASHING MACHINE COMPANY, St. Marys, Ohio: Washing Machines. Represented by J. S. McDaniel.

ELWOOD LAWN MOWER COMPANY, Elwood, Ind.: Lawn Mowers. Represented by H. E. Harvey and E. C. Heck.

FIEBERGER HEATING COMPANY, Akron, Ohio: Heaters and Furnaces. Represented by T. J. Hough and C. C. Hammond.

FOREST CITY PAINT & VARNISH COMPANY, Cleveland, Ohio: Paints and Varnishes. Represented by C. A. Young.

FOLLANSBEE BROS. COMPANY, Pittsburgh, Pa.: Tin Plate. Represented by E. E. Squire, Jr.

GEM CITY STOVE COMPANY, Dayton, Ohio: Clermont Stoves and Ranges. Represented by W. A. Howland.

GLOBE STOVE & RANGE COMPANY, Kokomo, Ind.: Steel Ranges, Cooks and Heaters. Represented by E. E. Raymer, J. C. Patten, S. B. Purvis, E. Sweeney. Souvenir, stamp dater.

GEDGE BROS. IRON ROOFING COMPANY, Anderson, Ind.: Automatic stock watering device. Represented by B. H. Gedge and E. E. Bell.

JOSEPH GARDNER, Indianapolis, Ind.: Soldering Furnace. Represented by L. B. Sherwood.

HEATH & MILLIGAN MFG. COMPANY, Chicago: Paints. Represented by E. F. Zander. Souvenirs, cuff buttons, kitchen reminder.

HOME PRIDE RANGE COMPANY, Marion, Ind.: Ranges. Represented by C. D. King.

HIBBARD, SPENCER, BARTLETT & Co., Chicago: Represented by A. P. Reiter.

HAGAN GAS ENGINE & MFG. COMPANY, Winchester, Ky.: Gas Engines. Represented by W. D. Chandler.

HUNT, HELM, FERRIS COMPANY, Harvard, Ill.: Coaster Wagons. Represented by G. W. Hamilton, Robert C. Cornelius and L. Eugene Norton.

HOT PEANUT VENDING COMPANY, Indianapolis, Ind.: Peanut Vending Machine. Represented by C. B. Mebarry.

HART & COOLEY COMPANY, New Britain, Conn.: Steel Registers. Represented by A. I. Growch and J. H. Robinson.

HOOSIER CHEMICAL COMPANY, Princeton, Ind.: Stove Polish. Represented by G. E. Kuhlman. Souvenir, box polish.

HOOSIER GAS MACHINE COMPANY, Indianapolis, Ind.: Gas Machine. Represented by F. R. Pixler.

INDIANAPOLIS STOVE COMPANY, Indianapolis, Ind.: Stoves and Ranges. Represented by A. E. Wells, D. C. Harr, J. P. Lowry and H. Bohannon.

INDIANAPOLIS TENT & AWNING COMPANY, Indianapolis, Ind.: Horse covers and storm aprons. Represented by J. M. Samuels.

INDIANA TANK HEATER COMPANY, Argos, Ind.: Cast Iron Submerged Tank Heater. Represented by L. W. Slayter.

E. G. ISCH & Co., Peoria, Ill.: Double and single face end gate Seeders.

JOLIET STOVE COMPANY, Joliet, Ill.: Moore's Stoves and Ranges. Represented by A. Kammerdiener.

JOHNSTON HARVESTER COMPANY, Indianapolis: Binder Twine. Represented by D. B. Ford.

KAMPFE BROS., New York: Star Safety Razor. Represented by W. L. Hartley.

KEUFFEL & ESSER COMPANY, New York: Drawing materials. Represented by O. S. Rhea.

KANT SWAY GATE COMPANY, Indianapolis, Ind.: Gates. Represented by L. W. Braden.

LOWE BROS. COMPANY, Dayton, Ohio: Paints. Represented by R. S. Cellen, H. L. Wilson and John Aldag.

LAMB WIRE FENCE COMPANY, Adrian, Mich.: Wire Fencing. Represented by G. H. Tucker, S. H. Swift and Fred. C. Stevenson. Souvenir, rule.

A. J. LINDERMAN & HOVERSON COMPANY, Milwaukee, Wis.: Stoves and Ranges. Represented by W. Phillips and N. Christopherson.

LISK MFG. COMPANY, Canandaigua, N. Y.: Represented by W. S. Toomey and C. A. George. Enameled Ware. Souvenir, miniature dinner bucket, wash basin.

LAPORTE CARRIAGE COMPANY, LaPorte, Ind.: Buggies and Carriages. Represented by W. L. Richey.

LAYMAN-CAREY COMPANY, Indianapolis, Ind.: Cutlery. Represented by T. D. Layman, Jr., J. W. Minehart, H. T. Davis, A. A. Gottomoller, C. P. Aten, C. D. Pearson and Frank Bailey.

JOHN LUCAS & Co., Philadelphia, Pa.: Paints, Painters' Supplies. Souvenir, shaving brush. Represented by F. F. Bowry.

LASHER MFG. COMPANY, Davenport, Iowa: Pot Cover Cabinet. Represented by C. W. Lasher. Souvenir, plate scraper.

MAJESTIC STOVE COMPANY, St. Louis, Mo.: Ranges. Represented by B. Cleveland and J. H. Hedges. Souvenir, oxidized silver watch fob.

MANNING, BOWMAN & Co., Meriden, Conn.: Bread Maker and Coffee Percolator. Represented by H. J. Gute.

MARTIN & MARTIN, Chicago: Stove Polish. Represented by T. G. Beard.

MARTINSVILLE BUGGY COMPANY, Martinsville, Ind.: Buggies. Represented by P. C. Morgan and H. S. Turner.

MANUFACTURERS' STOVE REPAIR COMPANY, Chicago: Automatic Temperature Regulator.

NATIONAL STOVE COMPANY, Lorain, Ohio: Ranges. Represented by J. A. Alexander and J. J. Moran.

NORVELL-SHAPLEIGH HARDWARE COMPANY, St. Louis: Diamond Edge Tools and Enameled Ware. Represented by H. B. Gordon. Souvenir, retailers' want book.

NATIONAL CUTLERY COMPANY, Detroit, Mich.: Axes, Butcher Knives, &c. Represented by W. H. Brown, E. H. Sutton and F. N. Stover. Souvenirs, pocket knife hone and "Keep Smiling" cards.

NICKEL PLATE STOVE POLISH COMPANY, Chicago: Stove Polish. Represented by J. W. Gill.

NATIONAL LEAD COMPANY, Cincinnati, Ohio: Represented by P. B. Sullivan. Souvenir, pocket match safe.

NEW ENGLAND WHIP COMPANY, Westfield, Mass.: Whips. Represented by E. O. Rice.

NATIONAL ROOFING COMPANY, Tonawanda, N. Y.: Asphalt Roofing. Represented by S. F. Van Wormer. Souvenir, thermometer.

OMAHA LIGHTNING ROD COMPANY, Omaha, Neb.: Lightning Rods. Represented by T. B. Adams.

PIKE MFG. COMPANY, Pike, N. H.: Assortment Whetstones. Represented by R. J. Horton and J. A. Winters. Souvenir, silver trays.

PITTSBURGH STEEL COMPANY, Pittsburgh, Pa.: Fencing. Represented by E. S. Jordan, E. Steytler and C. D. James.

J. E. PORTER & Co., Ottawa, Ill.: Hay Tools, Barn Door Hangers and Hardware sundries. Represented by C. B. Howland. Souvenir, leather watch fob with oxidized silver pendant.

T. C. PROUTY COMPANY, Albion, Mich.: Hardware specialties. Represented by R. E. Murray, M. L. Merriman and C. E. Bates.

PARRY MFG. COMPANY, Indianapolis, Ind.: Buggies. Represented by A. B. Gough.

P. M. PURSELL MFG. COMPANY, Indianapolis: Stoves and Ranges.

PETERS ARMS & SPORTING GOODS COMPANY, Cincinnati, Ohio: Arms and Sporting Goods. Represented by E. T. Stuart, F. E. Morancey and P. G. Orr. Souvenir, button.

QUALITY STOVE & RANGE COMPANY, Belleville, Ill.: Full line Ranges. Represented by Geo. M. Jackson, Jr.

RATHBONE, SARD & Co., Aurora, Ill.: Ranges, Base Burners and soft coal Heaters. Represented by W. J. Snyder.

ROCHESTER STAMPING COMPANY, Rochester, N. Y.: Kitchen Utensils, Table Ware. Represented by O. A. Smalley and F. C. Hippard.

RINGEN STOVE COMPANY, St. Louis, Mo.: Quick Meal Stoves. Represented by Wm. S. Jey and J. H. Brower.

ROBESON CUTLERY COMPANY, Rochester, N. Y.: Pocket Knives, Razors, Cutlery, &c. Represented by F. C. Hippard and O. S. Smalley.

REVOLVING BIN COMPANY, Chicago: Revolving Bin. Represented by R. H. Clark.

OSCAR C. RIXSON COMPANY, Chicago: Double acting Door Check. Represented by M. H. Force.

SIMONDS MFG. COMPANY, Chicago: Full line of Saws. Represented by A. T. Simonds and W. J. Feddery. Souvenir, Simonds' puzzle.

CHAS. SMITH & Co., Chicago: Hero Furnaces. Represented by L. H. Brewer and R. Hawkins.

SHELBY SPRING HINGE COMPANY, Shelby, Ohio: Spring Hinges. Represented by R. E. Murray and H. W. Steele. Souvenir, book.

STANLEY WORKS, New Britain, Conn.: General line of Builders' Hardware. Represented by J. H. Robinson, A. J. Growch. Souvenir, calendar.

WM. SHAKESPEARE, JR., Kalamazoo, Mich.: Reels, Rods, Baits. Represented by W. P. Shaffer.

SPRING STEEL FENCE & WIRE COMPANY, Anderson, Ind.: Wire Fencing. Represented by G. J. Derthick.

STOWELL MFG. & FOUNDRY COMPANY, Milwaukee, Wis.: Hay Carriers, Barn Door Hangers, Registers. Represented by H. B. Wells and J. H. Dosser. Souvenir, pen wiper.

UNION CITY CARRIAGE MFG. COMPANY, Union City, Ind.: Buggies and Carriages. Represented by J. C. Jones.

VAN CAMP HARDWARE & IRON COMPANY, Indianapolis, Ind.: General Hardware. Represented by H. S. Pearson.

VERMONT FARM MACHINE COMPANY, Bellows Falls, Vt.: Cream Separators. Represented by H. E. Gish.

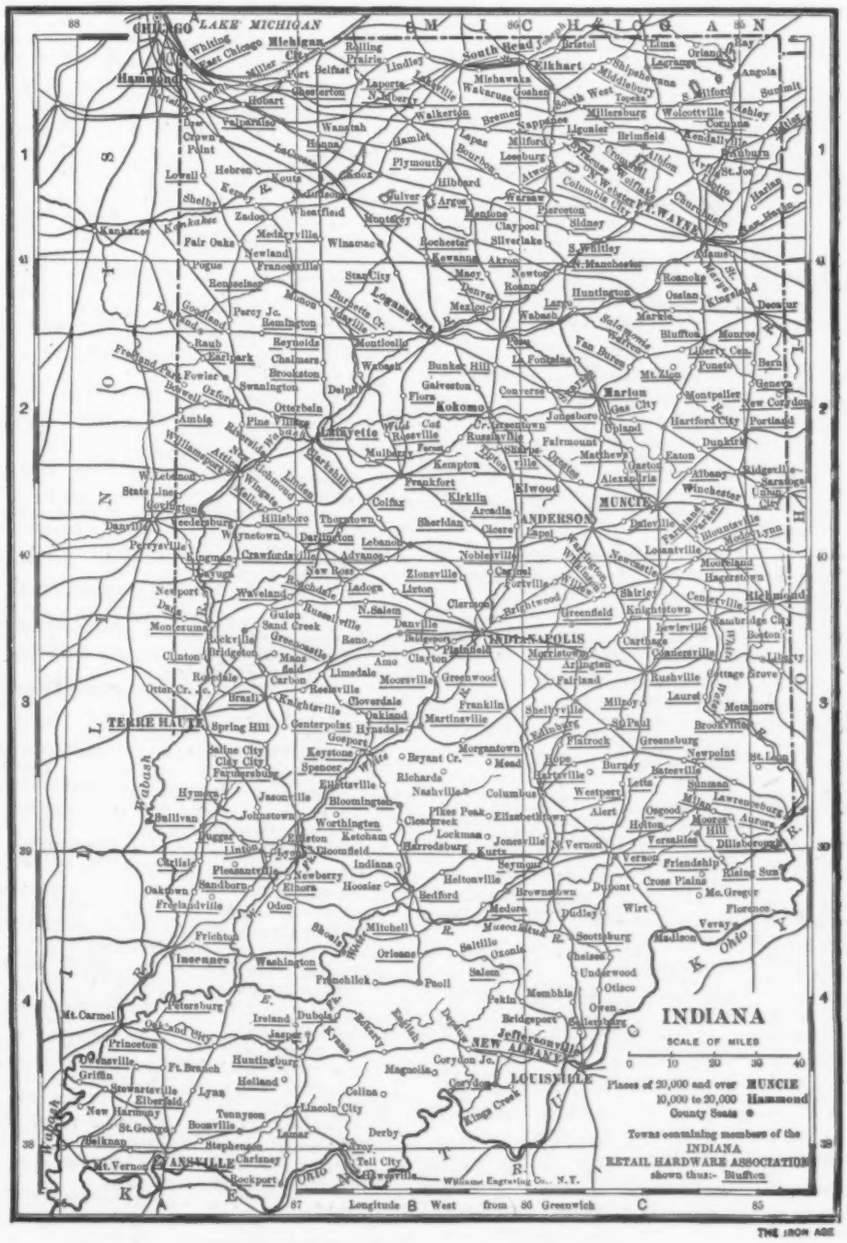
VOSS BROTHERS MFG. COMPANY, Davenport, Iowa: Washing Machines. Represented by H. C. White.

WESTFIELD WHIP COMPANY, Westfield, Mass.: Full line of Whips. Represented by R. H. Guinnup.

WHITE LILY WASHER COMPANY, Davenport, Iowa, and Toledo, Ohio: Washing Machines. Represented by A. F. Victor and J. C. Thompson.

WINCHESTER REPEATING ARMS COMPANY, New Haven, Conn.

YALE & TOWNE MFG. COMPANY, New York: Builders' Hardware. Represented by A. B. Howell. Souvenir, paper knife with oxidized handle.



Hardware Association Map of Indiana.

INDIANA ASSOCIATION MAP.

The accompanying map of Indiana, together with the imposing list of members also given, illustrates how well

the association has gathered the Hardware merchants of the State into its fold. The association is now about 600 strong, more than 100 accessions being reported during the convention. It thus takes high rank among the banner State retail Hardware associations of the country.

The officers are certainly to be congratulated on the results of their arduous labors for the welfare of the Hardware trade of the State.

It will be understood that places underscored contain members of the association. Cities of 20,000 and over are in capitals, as, for instance, MUNCIE. Places of 10,000 to 20,000 are in heavy face lower case. Places of less than 10,000 are in lower case roman type.

MEMBERS OF THE INDIANA RETAIL HARDWARE ASSOCIATION.

ADVANCE.
Alles & Caldwell.
AKRON.
Love & Whitcomb,
Miller & Zartman.
ALBANY.
McCormick & Son.
ALBION.
A. L. Baughman,
J. D. Berger.
ALEXANDRIA.
Brannum Hardware Company.
AMBIA.
J. B. Crawford.
ANDERSON.
C. Champlin,
D. E. East & Son,
A. J. Jones,
Nichol & Makepeace Company,
Ross Supply Company.
ANDREWS.
John A. Ivy.
ARCADIA.
Arcadia Hardware Company.
ARLINGTON.
N. P. Farlow.
ARGOS.
Brewer & Son,
M. L. Corey,
Slayter Hardware Company.
ASHLEY.
Clark Hardware Company.
ATWOOD.
J. E. Smith & Co.
AUBURN.
Culbertson & Boland.
AURORA.
H. P. Spaeth & Co.
BATESVILLE.
Meyer Lumber & Hardware Company,
H. J. Walsman.
BEDFORD.
Aldenhagen & Hartman,
Bedford Hardware Company.
BERNE.
Baumgartner Bros.,
Lechey & Sommer.
BICKNELL.
Henry Kidmiller.
BLOOMINGTON.
Davis Hardware Company,
Neeld & Co.,
VonBehren Hardware Company.
BLOUNTSVILLE.
J. C. Richardson.
BLUFFTON.
Rodgers & Cole,
Williams Hardware Company.
BOONEVILLE.
William Kinderman.
BOSTON.
J. R. Leab,
Arthur E. Nelson.
BOSWELL.
Samuel Bros. & Whitehead.
BOURBON.
Jacob Meyers,
C. H. New Hardware Company.
BRAZIL.
Kathman & Tilley,
McCrae & Brown Company,
Owl Hardware & Implement Company.
BREMEN.
John H. Steineck.
BRIMFIELD.
C. M. McMeans.
BRISTOL.
W. W. Bickle.
BROOKSTON.
McConnell Hardware Company.
BROOKVILLE.
Fieber & Holmes,
Fries & Geis,
Charles Samonel.
BROWNSTOWN.
M. W. Hamilton.
BUNKER HILL.
Mullin & Head.
BURNETTE CREEK.
J. J. Buchanan.
BURNEY.
Pumphrey & Evans.
BUTLER.
Rickey & Co.
CARLISLE.
Risinger & Ellis.
CARTHAGE.
W. H. Sharer.
CAYUGA.
George L. Watson.
CARMEL.
O. N. Nutt.
CENTER POINT.
C. O. Rentschler.
CENTERVILLE.
Dunbar & Son.
CHESTERTON.
Bartels Bros.
CHRISNEY.
E. Maier.
CHURUBUSCO.
J. W. Smith,
Weisheimer Bros.
CICERO.
Cicero Hardware Company.
CLARKS HILL.
F. A. Myers.
CLAY CITY.
Shawecker & Crabtree,
Travis & Travis.
CLINTON.
Clinton Hardware Company,
Swinehart Hardware Company.
CLOVERDALE.
Theo. M. Layne.
COLFAX.
E. L. Darby,
Charles Wetherold.
COLUMBIA CITY.
Jones & Jontz,
Benj. Rauffer,
Torbet & Romey.
CONNERSVILLE.
Conner & Lewis,
Starr-Mount Hardware Company.
CONVERSE.
Frank Dickey,
Powell Hardware Company,
Wales-Hunt Hardware Company.
CORUNNA.
Milo J. Thomas.
CORYDON.
J. J. Bulleit & Son,
B. T. Hurst.
COVINGTON.
M. Mayer, Jr.
CRAWFORDSVILLE.
Breckenridge & Bradshaw,
H. R. Tinsley & Co.
CROMWELL.
H. H. Hontz & Co.,
Milton, Moore & Co.
CROSS PLAINS.
John P. Jarvis.
CULVER.
J. F. Weiss.
DALEVILLE.
R. E. Horner.
DANA.
Hess & Hess.
DANVILLE.
Snyder & Newman.
DARLINGTON.
Butler, Peterson & Saidla.
DECATUR.
Shafer Hardware Company.
DENVER.
L. C. Duke.
DILLSBOROUGH.
John L. Roberts.
DUBOIS.
Geo. De Kemper & Son.
DUGGER.
John Rector Company.
DUNKIRK.
W. L. Skinner.
EARL PARK.
Compton & Washburn.
EAST CHICAGO.
Clinton & Sons.
EATON.
Ashy & Haynes,
Charles J. Johnson,
Morris & Morris.
EDINBURG.
O. W. Mutz,
F. A. Pruitt.
ELBERFIELD.
Heldt Bros.
ELKHART.
Borneman & Son.
ELNORA.
O. G. Coen.
ELWOOD.
Hunter Company.
EVANSVILLE.
E. M. Bush Hardware Company,
Heldt Bros. & Schuler,
H. Koch & Son,
Rosenberger, Kline & Co.
FARMERSBURG.
George Heap.
FARMLAND.
Gough & Snyder,
O. W. McCormick.
FLATROCK.
W. J. Morris.
FLORA.
Smith Brothers.
FORTVILLE.
Randall Bros.
FORT WAYNE.
Gerding & Aumann Bros.,
L. A. Moss & Co.,
Romary, Goeglin & Co.,
F. M. Smith & Co.,
J. M. Stouder.
FRANCESVILLE.
O. F. Higgins,
H. C. Kopke.
FRANKFORT.
Dinwiddie & Gaddis,
J. C. Shanklin.
FRANKLIN.
Duncan & Vawter,
Franklin Hardware Company,
Smith & Tilson.
FREELAND PARK.
Evens Bros.
FREELANDSVILLE.
Volle & Pieremeier.
FRIENDSHIP.
Louis H. Booster.
FRITCHTON.
J. A. Shaw.
GALVESTON.
W. H. Shirley.
GAS CITY.
Garthwaite Hardware Company.
GASTON.
Fallis, Brown & Fallis,
Powers & Co.
GENEVA.
A. G. Briggs Bros.
GOSHEN.
O. M. Curtis,
Jas. A. Riley & Son.
GOSPORT.
A. H. Burkert.
GOODLAND.
C. E. Burgess.
GREENCASTLE.
Bicknell Hardware Company.
GREENFIELD.
A. B. Rogers,
H. B. Thayer Company,
Thomas & Son.
GREENSBURG.
Mendenhall & Spillman.
GREENTOWN.
Channell & Leegar,
Powell & Thorn.
GREENWOOD.
C. B. Cook & Son.
HAMMOND.
E. C. Minas,
P. H. Mueller.
HANNA.
J. C. Ordung.
Charles E. Wills.
HARLAN.
J. H. Zimmerman & Son.
HARTFORD CITY.
W. E. Campbell,
Gable Hardware Company,
Lieber & Campbell.
HARTSVILLE.
Cattle Hardware Company.
HILLSBORO.
Hillsboro Hardware Company,
A. D. Summer.
HOBART.
A. J. Swanson.
HOLLAND.
Christian Rottger.
HOLTON.
N. M. Ward.
HOPE.
Hope Hardware Company,
Geo. D. Weinland & Son.
HUNTINGBURG.
Dufendach Hardware Company,
Stratman Hardware Company.
HUNTINGTON.
Reichenbach & Wickenheiser.
HYMERA.
V. D. Cummins.
IDAVILLE.
James Small,
J. N. Small.
INDIANAPOLIS.
C. W. Fryberger,
Gage Hardware Company,
Harmon & Hall,
Chas. Koehring & Bros.,
Lilly & Stalnaker,
Charles Maier,
F. H. Prunk,
R. A. Slaughter.
IRELAND.
M. L. Stinehart.
JAMESTOWN.
A. M. Southwick.
JASPER.
Lorey & Strum.
JEFFERSONVILLE.
T. J. Lindley.
JONESBORO.
Harris Hardware Company,
Jackson Bros.
KENDALLVILLE.
John Diebele,
G. W. Hoffman,
D. H. Stinson.
KEWANA.
Baske & Prevo,
J. C. Cannon.
KEYSTONE.
W. M. Twibell.
KINGMAN.
Bonebrake & Carter.
KIRKLIN.
R. C. Gorham,
McKinney Bros.
KNIGHTSTOWN.
Bell & Son,
T. P. Wagner & Son.
KOKOMO.
Kokomo Hardware Company.
LAFAYETTE.
Howe & Shipley,
Johnson-Barnes Hardware Company,
Shuee-Bahls Hardware Company,
Jameson Bros.,
Moore & Kemple Hardware Company,
Mertz Newman Company,
F. Reitemeier.
LAFONTAINE.
Clark & Son,
Hardman Bros.
LAGRANGE.
Smith Bros.,
Moon & Yoder.
LAGRO.
Todd & Son.
LAOTA.
Rich & Rosenberger.
LAKEVILLE.
John L. Moore.
LAPEL.
Bird & Son,
Waldo Bros.
LAPORTE.
Decker Bros.,
Webber Hardware Company,
Jas. Lower's Sons.
LAUD.
E. C. Schoenover.
LAUREL.
Charles C. Day.
LAWRENCEBURG.
E. Barrett & Son.
LEBANON.
W. S. Richey.
LEESBURG.
Ringgenberg & Brest.
LETTS.
Letts Hardware Company.
LEWISVILLE.
A. R. McIlwaine.
LIBERTY CENTER.
Arnold & Jackson.
LIBERTY.
J. A. Bertch & Son.
LIGONIER.
King Weaver,
Wier & Cawley.
LIMA.
Atwater & Nichols.
LINDEN.
Hopewell & Malabary.
LINTON.
Linton Hardware Company,
Sherwood & Son.
LOGANSPORT.
Flannegan Hardware Company,
I. M. Crawford,
Shurte & Van Steenburg,
M. L. Johnson,
A. A. Eberlein.
LOWELL.
Burnham Bros.
LUCERNE.
J. A. Frushauer.
LYNN.
A. I. Hiatt & Co.
LYONS.
Alonzo Bailey.
MACY.
Omis Case.
MARION.
O. C. Bradford,
W. A. Brown,
Price & Co.,
A. S. Wade.
MARKLE.
R. E. Fox,
James H. Penfield.
MARTINSVILLE.
J. W. Anderson.
MATTHEWS.
Smiley Bros.,
Hayworth Hardware Company.
MEDORA.
John W. Hamilton,
Williams & Banneman.
MELLOTT.
Mellott & Livengood.
MENTONE.
Wertenberger & Milburn,
Latimer & Bybee.
METAMORA.
C. H. Thorpe.
MEXICO.
J. F. Kinzie.

MICHIGAN CITY.
Bartholomew & Co.,
Stalger Hardware Company,
Otto Klopsch & Son.
MIDDLEBURY.
Kauffman & Kauffman,
Wise & Varnes.
MILAN.
G. W. Toole.
MILFORD.
Milford Hardware Company.
MILROY.
W. L. McKee.
MILLERSBURG.
S. L. Thomas.
MISHAWAKA.
Albert & Hunsberger,
O. E. Lang & Co.
MITCHELL.
M. C. Reed.
MODOE.
C. A. Harris.
MONROE.
Hocker & Smith.
MONTEREY.
Marbaugh Bros.
MONTEZUMA.
Cornwell & Spencer.
MONTICELLO.
Bunnell & Gilkerson,
Ed. R. Gardner.
MONTPELIER.
Big Four Supply Company,
C. H. Chaney,
Hoy Hardware Company.
MOORELAND.
O. E. Hoover.
MOORESVILLE.
G. A. Kaller.
MOORES HILL.
Geo. Schable & Son.
MORGANTOWN.
G. W. Crawford.
MORRISTOWN.
O. O. Frazer,
H. M. Rogers.
MORRIS HILL.
Scripture & Turner.
MOUNT VERNON.
Strack Hardware Company,
E. B. Scheck Hardware Company,
S. H. Gronemeyer & Son.
MOUNT ZION.
F. C. Huffman.
MULBERRY.
George H. Miller.
MUNCIE.
James R. Johnson,
Kinbrough Hardware Company,
R. Scott,
W. H. Ballard,
W. W. Shirk.
NAPPANEE.
Weiss & Frevert Bros.,
Howenstein, Burback & Rusher.
NEW ALBANY.
W. B. Creed,
P. R. Stoey & Son,
Daniel Bros.
NEWBERRY.
Ed. Scott.
NEW CARLISLE.
Brummitt-Mitchell Company,
NEW CASTLE.
Carpenter Hardware Company.
NEW CORYDON.
C. W. Muth.
NEW POINT.
John J. Point.
NEW ROSS.
A. W. Smith.
NOBLESVILLE.
W. E. Longley.
NORTH LIBERTY.
Price & Houser.
NORTH MANCHESTER.
Stewart & Naftsger,
D. Frame & Son.
NORTH SALEM.
Hamat & Wenckling,
Smythe & Hanna.
NORTH WEBSTER.
John C. Strembeek.
OAKLAND CITY.
Phillips & French,
Creek & Heidt Company.
OAKTOWN.
Polk & Schultz.
ODON.
B. D. Smiley.
ORESTUS.
E. S. Plackard.
ORLAND.
E. A. Wilder.
ORLEANS.
Orleans Hardware Company,
Johnson & Frost.
OSGOOD.
F. J. Freed.
OSSIAN.
F. M. Sharp.
OTTERBEIN.
Opp Hardware Company,
L. Laird & Bros.,
Sewell & Yeoman.
OWENSVILLE.
G. E. Daugherty,
V. H. Emerson & Co.
OXFORD.
Frank Menefee.
PARKER.
E. E. Deal.
PERU.
Charters-Brown Company,
Peru Mercantile Company.
PETERSBURG.
Read & Snyder,
Shawhan & Boonshot.
PIERCETON.
H. D. Heagy,
Bayman Bros.
PINE VILLAGE.
P. L. Anderson.
PLAINSFIELD.
D. G. Gilbert,
Cope & Cox.
PLEASANT LAKE.
John O. Matson.
PLEASANTVILLE.
C. Bough.
PLYMOUTH.
Hess, Harley & Grube,
H. E. Buck.
PORTLAND.
Fulton Hardware Company,
J. L. Johnson.
PRINCETON.
Herriott & Gastlen.
RAUB.
J. B. Cooper.
REMINGTON.
W. L. Gumm.
RENSSELAER.
E. D. Rodes.
REYNOLDS.
D. D. Phillips.
RICHMOND.
Jones Hardware Company,
Irvin Reed & Son,
R. W. Hall,
J. F. Hornady.
RISING SUN.
G. B. Gibson & Son.
ROANN.
Gidley & Son,
S. L. Ocker.
ROANOKE.
Richard Bros.,
A. Wasmuth & Son.
ROACHDALE.
B. L. Hall.
ROCHESTER.
Ed. Fook,
N. R. Stoner.
ROCKPORT.
Runstidt Bros.
ROCKVILLE.
Ott Hardware Company,
Dooley & Dooley.
ROLLING PRAIRIE.
Reese & Bros.
ROSSVILLE.
R. W. Sharp.
RUSHVILLE.
Hunt & Kenney,
C. F. Edgerton,
Havens & Riggs.
RUSSIAVILLE.
Newlin & Long.
ST. LEON.
Al. Knecht.
ST. PAUL.
J. M. Shortridge,
E. E. Buck,
St. Paul Hardware Company.
SALEM.
Frank Summers,
Reid & Peck.
SANDBORN.
H. L. Renner.
SARATOGA.
J. L. Crum.
SCOTTSBURG.
W. L. Hubbard,
Cravens & Gardner.
SELLERSBURG.
Edwards & Crim.
SEYMOUR.
Cordes Hardware Company,
Union Hardware Company.
SHARPSVILLE.
M. Hoffman & Son.
SHELBYVILLE.
J. G. DePrez & Co.,
Strong Hardware Company,
Gable & Griffy.
SHERIDAN.
Sheridan Hardware Company,
Richey Hardware Company,
Young & Steffey.
SHIRLEY.
Shirley Hardware Company,
P. K. May.
SIDNEY.
Miller Hardware Company.
SOUTH BEND.
Studebaker & Chord,
Shidler Bros.,
J. E. McEderfer,
W. H. Brugger,
Zeltner Bros.,
Irving A. Sibley,
G. E. Myer & Son.
SPENCER.
James A. Layman,
F. T. Batterton.
SOUTH MILFORD.
E. F. Seagley.
SOUTH WHITLEY.
Maston & Burwell.
STAR CITY.
W. L. Bott,
A. W. Hartman.
SULLIVAN.
Scott Bros.,
Mattix, Turman & Riggs,
J. B. Mullane,
Long, Warren & Co.
SUMMITVILLE.
Vinson & Patts.
SUNMAN.
Bushing & Beer,
J. H. Nelman.
SWAZEE.
R. A. Slaughter,
H. Marks.
SYRACUSE.
E. E. Striely.
TERRE HAUTE.
Edgar Dick,
Freitag, Weinhardt & Co.,
J. A. Jauergeus,
Duenwegs Hardware Company,
Austin Hardware Company,
S. L. Fenner Hardware Company,
H. P. Lownley,
Adams, Snyder & Co.,
C. C. Smith & Son,
Townley Stove Company.
THORNTOWN.
M. F. Richey.
TIPTON.
L. Compton & Son,
Heast & Quean.
TOPEKA.
J. J. Yoder.
TROY.
Otto J. Baertich.
UNION CITY.
P. J. Wiese & Co.
UPLAND.
Bell & Williams.
VALPARAISO.
Ross & Wilson.
VAN BUREN.
Judson & Miller,
Frazee & Browell.
VERNON.
Wagner Bros.
VERSAILLES.
W. M. Hunter.
VEVAY.
A. V. Danner.
VINCENNES.
W. H. Weed,
Ernison & Nicholson.
WABASH.
W. J. Creighton,
Carpenter Bros.,
King, McNamee & Hipskind.
WALKERTON.
Ross & Braely.
WARREN.
Semthurst Bros.,
E. P. Miller.
WARSAW.
Webber Hardware Company.
WASHINGTON.
Hatfield & Palmer Company,
M. J. Carucham Company.
WAVELAND.
C. W. Spencer.
WEST LEBANON.
Martin & Owens.
WESTPORT.
Ed. Whaler.
WHITING.
George M. Homecker.
WILKINSON.
P. K. May.
WILLIAMSPORT.
E. L. Hattenstein,
Lindsey Bros.,
Broadie & Broadie.
WILLOW BRANCH.
B. J. Parker.
WINCHESTER.
Hobbick & Magee.
WOLCOTTVILLE.
F. P. Sanderson & Son.
WOLF LAKE.
A. L. Baugham.
WORTHINGTON.
Shaw Hardware Company.

NORVELL-SHAPLEIGH HARDWARE COMPANY'S WANT BOOK.

NORVELL-SHAPLEIGH HARDWARE COMPANY, St. Louis, Mo., is distributing to its trade a want book, pocket size, hand stitched with linen thread, cloth bound. It has a loop on the cover containing one of the company's pencils. Only about 15 pages are taken up with advertising matter, showing some of the company's specialties. The other pages are ruled and perforated for the convenience of the merchant. Much miscellaneous information is given in the back of the book, such as postal laws of the United States, all the standard weights and measures, table of comparative discounts, standard lists on many goods sold at discounts, &c.

RICHMOND CEDAR WORKS CATALOGUE.

RICHMOND CEDAR WORKS, Richmond, Va., has issued an artistic catalogue regarding its Snow Ball ice cream freezer. Illustrations are given of the exterior, interior and repair parts of the freezer. There are interesting views of the Dismal Swamp, where the company obtains its cedar and in which there are 30 miles of railway owned and operated by it. A view of the plant, covering 12 acres, is also given.

L. E. JONES, JR., 7-9 Warren street, New York, is now the sales representative in this territory of the Central Specialty Mfg. Company, Chicago, Ill., which manufactures a good line of nickeled brass Bathroom Supplies and Fittings. He also similarly represents the Forsyth Mfg. Company, Buffalo, N. Y., which also manufactures Bathroom Fittings, more moderately priced, including, for example, Soap Dishes, Sponge Baskets, Brush and Tumbler Holders, Comb and Brush Trays, straight and three-arm Towel Bars, &c. The latter line is made of steel, nickeled on copper and the various articles can be profitably retailed at 10 cents each.

SILVER & Co., 304 to 314 Hewes street, Brooklyn, N. Y., in a four-page folder reproduce a portion of the opinion of Judge Hale in the Circuit Court of the United States, District of Massachusetts, sustaining their patent on Bath Seats. Illustrated descriptions are also given of the various styles of Bath Seats which the company is manufacturing. Judge Hale's decision is a pamphlet of 12 pages and a copy will be sent by the company to those who desire it.

Iowa Retail Hardware Association.

HARMONY was perhaps the most noticeable characteristic of the eighth annual convention of the Iowa Retail Hardware Association, held at Des Moines, February 14, 15 and 16. The sessions were interesting and all open discussions were lively and generally participated in. In treating best methods of selling certain lines of goods Hardwaremen in the same town more than once referred to their mutual competition, describing their efforts to get the best of each other with the greatest frankness and good feeling. Situations of this kind were not without a humor which was keenly appreciated. Not a single discordant note was sounded either in these more or less personal discussions or in touching on questions of wider import. The general atmosphere was well summed up by C. W. Asbury, vice-president of the American Hardware Manufacturers' Association, who said in addressing the convention, "I never saw a better spirit than is displayed in this gathering." Much of the success of the meeting was due to President Vincent, who made a masterly presiding officer and conducted business and discussions in an alert and tactful way.

The Attendance

was very large and was representative of the entire State. Probably not far from 400 retail merchants were present and some estimates were considerably in excess of that figure. Arrangements for the accommodation of visitors were easily made, Des Moines being fortunate in having a number of good hotels of ample size. As usual the Savery Hotel was made headquarters, but the Chamberlain, the Kirkwood and other hostelries were filled to the limit with Hardwaremen.

H. S. VINCENT.

A. R. SALE.

J. F. DOTY.

L. C. CLIFFORD.

A Building Was Secured

for the first time in which the manufacturers' exhibits could be installed and the formal sessions of the convention held under the same roof. Thus it became feasible for exhibitors to turn the space allotted to them into booths, many of which were handsomely decorated. Indeed the convention building was described by one of the local newspapers as resembling a food show. A rule was established that all exhibits must be closed during the sessions of the convention, and while this might have been more closely adhered to, all meetings were well attended.

A Notable Session.

The Thursday morning session was attended by upward of 300 and was an especially notable meeting, being attended by President Wright of the National Hardware Association, President Bogardus of the National Retail Hardware Association and F. E. Cutler of the Cutler Hardware Company, Waterloo, Iowa, president of the Iowa Jobbers' Hardware Association. The annual address of President Vincent was delivered at this time, as was the report of Secretary-Treasurer Sale, and the splendid report of the Insurance Association delivered by L. Lindenberg, its vice-president. Following came the

Address of President Bogardus,

who took for his subject "Legitimacy." Mr. Bogardus took the position that a thing is not legitimate merely because it comes within the letter of the law. He referred to sweat shop methods, freight discrimination, the beef trust and the insurance revelations, declaring that we are in the midst of a great awakening and men can no longer disregard the rights of others and ignore their duty to their fellows. Applying right standards to the catalogue house methods, they are not legitimate; they are characterized by misrepresentation and fraud. When properly informed on this question the final judgment of the American people will be fair and just. To educate them becomes a duty which our organizations cannot ignore.

The American Hardware Manufacturers' Association

was represented at the convention by its vice-president, C. W. Asbury of the Enterprise Mfg. Company, Philadelphia. Much gratification was felt at the recognition shown by Mr. Asbury's presence, and he was most cordially received when introduced at the Wednesday afternoon session. In his brief address he assured the retailers that the manufacturers were with them on any question bearing upon the hardware trade. "The manufacturer," he said, "appreciates that the retailer is the ultimate distributer of the product, but by force of circumstances they have not been in as close touch with each other as is manifestly desirable." He urged that fairness, frankness, conference and square dealing offered the best means of correcting any existing evils, and declared the belief that his association and the various retail organizations should make common cause. "Manufacturer, jobbers and retailers," he said, "are all in the same boat; they are absolutely interdependent, for neither can get out if he would."

The National Hardware Association

was represented by its president, W. S. Wright of the Wright & Wilhelmy Company, Omaha. Mr. Wright delivered an able and suggestive address on Thursday afternoon. After a happy introduction, in which he humorously referred to his business dealings with Iowa merchants, he proceeded to discuss the work of the Joint Catalogue House Committee. Referring to the criticism which has been directed at the work of this committee, he declared that it is easy to criticise, but a difficult matter to show how the work could be done better. The Joint Committee have accomplished enough to win the support and practical help of every retail merchant. There is no way in which a retailer can better help to solve the catalogue house question than by working to increase the business and profits of his competitors. Merchants must also be progressive enough to take advantage of the agents by which the catalogue houses have increased their business. Mr. Wright urged the retailers to get up a mail order list in their own territory—not in their neighbor's territory—assuring them that not what they got the easiest, but what they worked

the hardest for would be of most positive and lasting benefit

The Stereopticon Lecture

of the Joint Committee was delivered by S. R. Miles of Mason City and comprised the views and arguments with which the trade are now familiar. The thoroughness and efficiency with which the subject was handled were appreciated by all. Mr. Miles also discussed the parcels post campaign and recommended that all members use their influence with their Congressmen to prevent legislation favorable to parcels post and to further the cause of 1-cent letter postage.

School of Practical Salesmanship.

This department of the programme, partaking of the nature of a question box, was scattered throughout the sessions. The following papers were prepared:

STOVES, by C. F. Schmidt, Marshalltown.
FURNACES, by J. F. Doty, West Liberty.
HAY TOOLS, by C. E. Haas, Le Mars.
PAINTS, by S. R. Miles, Mason City.
BUILDERS' HARDWARE, by H. S. Vincent, Fort Dodge.
FIELD FENCE, by L. C. Abbott, Marshalltown.

General discussion followed the reading of the papers and methods and ideas of great practical value were suggested and in some cases fully described.

An illustrated lecture on "Advertisement" was delivered by Professor Conway MacMillan of the National School of Salesmanship, Minneapolis, whose clean-cut points and entertaining delivery were much enjoyed.

CHARLES SWAINE.

S. R. MILES.

EARL C. MOORE.

L. LINDENBERG.

The Question Box proper was under the leadership of W. M. Orcutt, Sioux City. A question in which the greatest interest was taken had to do with

The Exemption Laws

which, in the State of Iowa, are very unfavorable to merchants. R. A. Greene, Peru, a Representative to the Legislature from Madison County and the author of a bill to secure more equitable statutes in this regard, addressed the convention at some length, and asked for the active personal support of the Hardware merchants in his effort to correct existing abuses. Referring to the question whether or not Hardwaremen should organize local and county associations for the purpose of handling credits, Mr. Greene took the position that such organizations would be accused of putting up prices, and in preference recommended associations composed of merchants in all trades. It was brought out that several such organizations already exist in different parts of the State, which were warmly indorsed by subscribers present. Their methods of operation were described in detail. Formal indorsement of Mr. Greene's bill appears in the resolutions adopted by the association and given elsewhere.

Convention Committees.

The following convention committees were announced by President Vincent:

RESOLUTIONS: S. R. Miles, Mason City; E. C. Moore, Waverly; L. H. Kurtz, Des Moines.
NOMINATIONS: W. H. Millard, Cherokee; J. J. Sobolik, Cresco; P. C. De Vol, Council Bluffs.
AUDITING: L. A. Gnam, Carroll; Charles Griebeling, Newton; L. R. Bailey, Mason City.
PRESS: L. Lindenberg, Dubuque; H. S. Rayburn, Newton; R. J. Breckenridge, Brooklyn.

Officers for 1906.

The following officers and directors were elected for the ensuing year:

PRESIDENT, H. S. Vincent, Fort Dodge.
VICE-PRESIDENT, C. E. Haas, LeMars.
SECRETARY-TREASURER, A. R. Sale, Mason City.
DIRECTORS: First District, E. C. Barbour, Fort Madison; Second District, J. F. Doty, West Liberty; Third District, E. C. Moore, Waverly; Fourth District, F. R. Currie, Mason City; Fifth District, L. C. Abbott, Marshalltown; Sixth District, George Haw, Jr., Ottumwa; Seventh District, L. C. Clifford, Des Moines; Eighth District, F. P. Bolinger, Afton; Ninth District, Charles Swaine, Council Bluffs.

The Smoker.

Business and not pleasure was the main object of all who attended the convention. The Des Moines Hardware Club, however, prepared a most enjoyable complimentary entertainment, buffet lunch and smoker, which was held at the Elks' club house Thursday evening. The affair was in charge of a committee consisting of F. H. Luthe, Luthe Hardware Company; T. E. Hurley, Brown-Hurley Hardware Company; J. A. Gunn, J. I. Case Threshing Machine Company, and C. S. Walker, Kratzer Carriage Company. Other subscribers included Advance Thresher Company, Avery Mfg. Company, Walter Boyt Saddlery Company, Cruzan & Co., Des Moines Iron Company, Des Moines Linseed Oil Works, Dempster Mfg. Company, Des Moines Saddlery Company, Des Moines Incubator Company, Des Moines Stove Repair Company, Emerson Mfg. Company, Empire Cream Separator Company, Fuller & Johnson Mfg. Company, Gaar, Scott & Co., Great Western Heater Company, Green Foundry & Furnace Works, H. C. Hargrove, Huber Mfg. Company, Hawkeye Transfer Company, Hoosier Drill Company, International Harvester Company, Keith Furnace Company, Langan Bros., Moline Plow Company, Mitchell & Lewis Company, Merchants' Transfer Company, Ohio Cultivator Company, Parlin & Orendorff Company, Port Huron Machinery Company, Racine-Sattley Company, Standard Glass and Paint Company, Standard Oil Company, Schmitt & Henry Mfg. Company, St. Louis Cordage Company.

Music was furnished by a local orchestra, and the programme included athletic contests, moving pictures and acts from the local vaudeville theaters.

Greetings.

S. R. Miles, Mason City, who represented the Joint Catalogue House Committee at the Nebraska convention in Lincoln on Monday, brought greetings from that organization to the Iowa Association. A letter was also received by President Vincent inviting all Iowa Hardware men to attend the coming convention of the Illinois Association in Chicago. A cordial letter was also received from President Kretsinger of the American Hardware Manufacturers' Association.

Resolutions.

The following resolutions, prepared by the committee appointed for that purpose, were adopted by unanimous vote of the convention:

CHANGE OF NAME.

That the name of this association be changed by striking the word "Dealers" from the title, in conformity to a similar change

made in the name of the National Association, thus making the name of the association "Iowa Retail Hardware Association."

PARCELS POST.

That we are opposed to the agitation that is being made to get the Government to enter any further into the transportation business, especially when the rates proposed are lower, as stated by the Post Office officials, than the actual cost of transportation paid by the Government.

JOINT COMMITTEE.

That the members of this convention assembled endorse and support the action and work of the Wholesale and Retail Joint Committee.

That we wish most heartily to thank them for the time and labor they have given to the betterment of the Hardware trade and for the able presentation of their work with the aid of the stereopticon at this meeting.

THANKS, ETC.

That we extend a vote of thanks to President Bogardus of the National Retail Hardware Association for attending our convention and for the profitable advice and help that he has given the association, and suggest that a rising vote of thanks be extended to him.

That we also extend a vote of thanks to Mr. Wright, president of the National Hardware Association, Professor MacMillan of the National School of Salesmanship, also connected with the University of Minnesota, for his very able address on "Advertising," and to Representative Greene for his helpful address on organization and the proposed exemption bill.

That a most hearty vote of thanks be tendered the Des Moines Hardware Club, and especially its officers and directors, for the very enjoyable entertainment provided this association and the many other courtesies extended to the association and its members.

That we fully appreciate the liberal patronage extended to us through the medium of our annual souvenir programme and the splendid exhibit as rendered by our manufacturing and jobbing friends, and suggest that we show our appreciation by extending to them a liberal share of our patronage.

GROCERY AND RACKET STORES.

Whereas, The distribution of standard lines of Hardware through the grocery trade tends to demoralize prices and creates unpleasant and objectionable competition from retail grocers and racket stores, therefore be it

Resolved, That we recommend to our members the importance and advantage of confining their purchases to the Hardware jobbers and ask the manufacturers, both for their advantage and that of the retail trade, to limit their sales to the Hardware dealers who have materially assisted them in building up the reputation they enjoy on well-known standard brands.

INSURANCE COMPANY.

That we appreciate the splendid showing made by the Insurance Department of this association, and believe that every Hardware merchant in Iowa should embrace this opportunity afforded him to carry at least a portion of his insurance in a company organized for his benefit and which effects so handsome a saving over stock company rates.

EXEMPTION BILL.

That we endorse House bill No. 183, introduced by R. A. Greene, the so-called exemption bill, and that the sentiment of this association is that the bill should be passed by our Representatives at this session.

That we deprecate the action on the part of any who use the association meetings to distribute circulars to bring discredit on others, and we repudiate such action as unfair and discourteous to the association.

Selling Stocks in Bulk.

The following petition to the members of the Legislature of the State of Iowa was adopted:

We, the retail Hardware dealers of the State of Iowa, in convention assembled, respectfully petition your honorable body to place upon the statute books a law requiring merchants to give all creditors notice when about to sell their stocks of goods in bulk.

We ask to be relieved from competing with stocks purchased at 50 cents on the dollar, the same being shipped from town to town and the effect being to demoralize legitimate trade.

Secretary's Report.

The following extracts are taken from the annual report of Secretary-Treasurer A. R. Sale of Mason City:

It is very evident from the general correspondence and interviews with people in the field that Iowa Hardware people are becoming fully convinced that the Hardware Association is not only an annual convention, but that it is

A LIVING, GROWING FORCE,

embodying the abilities and business interests of 500 up-to-date Hardware merchants. More than this, they are beginning to realize that its great ally, the National Retail Hardware Association, with its *Bulletin* and Joint Committee, is wielding an influence never before equaled in any commercial organization.

It is true that there are those who are throwing rocks and clubs, but we all remember the old saying about the best apple tree being located by its accumulation of clubs and rocks. When a force like our twenty-three retail Hardware organizations begin to focus and move, there is bound to be some hard grinding and squealing somewhere. But to return to the details of the work of our own organization.

LAST YEAR

we reported a total of 449 members upon our rolls up to the convention date. Many of these names, however, were those carried along delinquent, with the expectation that they would attend our meeting and renew their allegiance to the organization. After the convention, however, a series of communications was opened up, including bills for dues and a notice of sight draft for same if not paid by a certain date. All of these communications brought good results, many not responding, however, until drafts were forwarded. The final result of this campaign was the dropping out of 137 names for delinquency, removal and out of business. This left the net membership 449 less 137, or 312. To this has been added during the year and up to the date of this writing new names, making a total of

480 PAID MEMBERS.

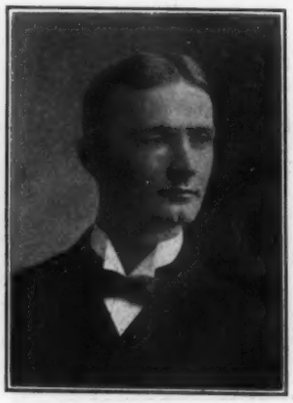
If we add 125 new members at this session and include all who have paid to 1906, we shall have the largest number of paid memberships in the whole list of Hardware organizations.

SOUVENIR PROGRAMME.

The making of a larger and more presentable souvenir programme, which was decided upon by your committee, is a new departure for Iowa, and one which we hope meets the approval of the membership. It certainly appeals to the advertising public who have things to say to you in its pages, as you may see by their liberal patronage.

Some of the trade press people are saying unkind things about the programme advertising, but it is a fair proposition to say that these lamentations are only another case of "sour grapes." Take the case home to yourselves. You get the programme, you get the trade papers. In which publication did you do the most advertising reading? The real test of the value of an advertisement is the amount of attention it secures. This feature of our work has netted the association treasury a handsome profit.

C. F. SCHMIDT.



W. G. LANGFITT.

ROBERT J. BRECKENRIDGE.

THOMAS A. NICHOLS.

OUR EXHIBIT FEATURE

is of course an experiment, but is one being tried in Ohio, Wisconsin, Illinois and Indiana this year, and is capable of a very fine development. Your committee were practically compelled to undertake the work on account of the crowded condition of the hotels during the session of the Legislature. But they were seriously handicapped by the lack of a suitable building for the purpose. Des Moines promises to be ready by another year with something worthy of our central convention city, so that at the next annual meeting we shall hope to have an exhibit housed and displayed in a way worthy of the people who make it, the people who come to see it and the great branch of commercial interests that it represents. We predict that, in spite of the many obstacles that have been met in our first attempt and the necessarily crude presentation in our poorly housed exhibit of this year, that this feature of the annual convention will grow and develop until it becomes a great educational and trade exposition, bringing the factories and jobbing houses of the country to our own doors.

Treasurer's Report.

Mr. Sale's report as treasurer showed receipts for the year of $3,747.43 and disbursements of $2,182.74, leaving a balance on hand of $1,564.69.

President's Annual Address.

From Mr. Vincent's interesting presidential address we make the following extracts:

Our association has grown from the group of dealers

F. P. BOLINGER.

C. E. HAAS.

who met in Council Bluffs in 1898 to 500 paid members at the present time. This number includes

NO DEAD TIMBER

of any kind, but means 500 live, full-paid members. I think the association should be congratulated upon this membership of the best and most up-to-date Hardware dealers in Iowa.

We are here with the idea of getting practical benefits from the exchange of ideas and seeing how the "other fellow" carries on his business, and I hope that each and every one of you will be able to take some ideas home that will do you good in a practical way and aid you in conducting your business. We are here to help each other and the only way this can be done is by becoming acquainted and exchanging ideas and methods of doing business.

GET BUSY, GET ACQUAINTED.

Don't wait for an introduction. Any man you meet with a key on I will guarantee is all right, and he may have the very idea that you want to apply to your business if you only ask for it.

WORK OF THE NATIONAL.

In the last issues of the catalogues that we all should have on our desks you can see some of the fruits of the National Association work. Many of the standard goods that used to be quoted there are conspicuous by their absence. All is due to the efforts of the National Association and the Joint Committee. I take this opportunity of indorsing the Joint Committee in their very able work, and believe that I voice the sentiments of every member of this association in doing so.

HANDLING THE EXHIBITS.

You have all heard criticisms of the plan of having the exhibits in the hotels, and likely you have criticisms to make on this plan as it is before you to-day. We would be glad to hear from any one who has any suggestions to make, and hope the critic will have something better to offer, for I assure you that the working out of this idea of having the convention and the exhibits under one roof has given your Executive Committee and officers and directors of the association more trouble and made more work than anything that has been undertaken by the association since I have been identified with its work.

NONMEMBERS PRESENT.

We have been informed, much to our surprise and regret, that there are some Hardware dealers who attend these conventions and share in the benefits of the association who fail to affiliate with us, and thus deprive the association of the strength of their names and influence. I hope that no criticisms of this nature will be made at our 1906 convention, but that every Hardwareman present will do his full duty and leave his name and membership with our secretary before leaving the convention rooms.

I can see no reason why our association should not continue in its march of progress. I think we have the best association in the National body, and its continued growth and prosperity rest entirely with the Hardware dealers of Iowa. The association has received constant and loyal support from all its members, and the continuation of this spirit will keep us in the van of State associations, and thus demonstrate again that "In all that's good, Iowa affords the best."

CONVENTION NOTES.

C. W. Brelsford, who attended the convention as the representative of the Cole Mfg. Company of Chicago, was remembered by many members of the association as their first secretary. Mr. Brelsford was formerly a Hardware merchant at Villisca, Iowa, and called to order the first State convention held in Des Moines eight years ago, being subsequently elected secretary of the association.

The problem of heating the convention building was solved by courtesy of several manufacturers of Furnaces and Stoves, who cheerfully fired up in various parts of the building. Special thanks were due to the Green Foundry & Furnace Works, Des Moines, who set up one of its large Furnaces in the convention hall.

The Black Silk Stove Polish Works, Sterling, Ill., displayed in its booth a large sign, lettered and ornamented with brass headed tacks. All visitors were invited to register a guess on the number of tacks in the sign, and the winner will receive a valuable prize.

Besides the houses which installed exhibits several other large jobbers were represented at the convention. From Hibbard, Spencer, Bartlett & Co., Chicago, Frank Hibbard, F. H. Gadd, W. H. Merritt and A. H. Kriechbaum were present. Mr. Hibbard entertained a small luncheon party in the grill room of the Chamberlain Hotel on Thursday.

G. W. Trout, Trout Hardware Company, Chicago, and C. C. Hoppe, the company's Iowa representative, were present during part of the convention.

Norvell-Shapleigh Hardware Company, St. Louis, was represented by its salesman, J. H. Senden of Des Moines.

Cigars were distributed at the close of one of the sessions by Knapp & Spencer Company, Sioux City, Iowa.

Luthe Hardware Company and Brown-Hurley Hardware Company, Des Moines, showed great attention to visitors throughout the week. The former distributed substantial souvenirs in the shape of Pocket Knives in leather cases, and the latter Caliper Rules, also in leather cases. F. H. Luthe and T. E. Hurley were on the Entertainment Committee of the Des Moines Hardware Club and devoted most of their time throughout the week to the many details requiring their attention.

Curtis & Curtis, Iowa City, manufacturers of Husking Goods, distributed attractive illustrated catalogues at one of the convention sessions.

The handsome new retail store of Garver Hardware Company, Des Moines, was visited by many convention delegates and was uniformly admired. The spacious and substantial building, only recently completed, is a model of its kind, and was designed to afford adequate accommodations for years to come, although a rapid growth of business is confidently expected.

EXHIBITORS.

Following is a list of manufacturers and jobbers exhibiting at the convention, and the lines shown:

AMERICAN STEEL & WIRE COMPANY, New York: American and Ellwood Fence. Represented by T. H. Fuller, L. P. Rider and R. A. Beak.

AMERICAN WIRE FENCE COMPANY, Chicago, Ill.: White Model double coated Field Fence. Represented by H. C. Gurney.

ART STOVE COMPANY, Detroit, Mich.: Laurel Stoves and Ranges. Souvenir, miniature Hatchet.

E. C. ATKINS & Co., Indianapolis, Ind.: Complete line of Atkins Saws. Represented by G. W. Dunnington and P. L. Edwin. Souvenir, memorandum book.

BEATS-ALL WASHING MACHINE COMPANY, Des Moines, Iowa: Beats All, Kleanwell and Western Washing Machines.

BERGSTROM STOVE COMPANY, Neenah, Wis.: Royal Stoves and Ranges. Represented by H. S. Brooks and W. A. Campbell.

BLACK SILK STOVE POLISH WORKS, Sterling, Ill.: Black Silk Stove Polish. Represented by L. K. Wynn.

W. H. & W. G. CALHOUN, Marshalltown, Iowa: Smoke consuming Stove.

CASCADEN MFG. COMPANY, Waterloo, Iowa: Progressive Stoves and Ranges. Represented by C. W. Cunningham and W. C. Lang.

COLE MFG. COMPANY, Chicago, Ill.: Cole's Original Hot Blast Heater and Coleized Steel Range. Represented by C. W. Brelsford and M. M. Foott. Souvenir, pocket mirror.

CRIBBEN & SEXTON COMPANY, Chicago, Ill.: Universal Stoves and Ranges. Represented by M. R. Bingham.

CULTER & PROCTOR STOVE COMPANY, Peoria, Ill.: Peoria Stoves and Ranges and King Bee Air Blast.

F. R. CURRIE, Mason City, Iowa: Currie's patent Saw Cabinets and display cases.

DENNING WIRE & FENCE COMPANY, Cedar Rapids, Iowa: Woven Wire Fence and Gates. Represented by L. L. Barnum, I. A. Odell and J. M. Denning.

DES MOINES STOVE REPAIR COMPANY, Des Moines, Iowa: Stove and Furnace Castings and Fittings. Represented by J. B. Green.

DOVER MFG. COMPANY, Canal Dover, Ohio: Asbestos Sad Irons. Represented by W. H. Whitford.

ELLIS-PORRITT COMPANY, Minneapolis, Minn.: Toledo children's Vehicles, made by Toledo Metal Wheel Company, Toledo, Ohio; Hammocks made by Glenwood Hammock Mills, Milwaukee, Wis.; Enameled Ware made by Coonley Mfg. Company, Clyde, Ill., and Lamps, &c., made by Pittsburgh Lamp, Brass & Glass Company, Pittsburgh, Pa.

ESTATE OF P. D. BECKWITH, Dowagiac, Mich.: Round Oak Stoves, Ranges and Furnaces. Represented by J. L. Parker, H. P. Knowlton and J. O. Sargent. Souvenir, story book.

EXCELSIOR STOVE & MFG. COMPANY, Quincy, Ill.: Neutipe Base Burner, Parlor National, Perfect Hot Blast and Air Blast National Heaters, Capital Chief and Cadet Steel Ranges and Banner Cast Range. Represented by H. Brown, G. E. Green and W. J. Wood. Souvenir, watch fob.

FULLER-WARREN COMPANY, Milwaukee, Wis.: Steel and Malleable Ranges, Steel Cooks and Base Burners. Represented by J. L. Potter, W. B. Barney and J. K. Wilson.

GEE-WHIZ MFG. COMPANY, Des Moines, Iowa: Gee-Whiz Washer. Represented by M. R. Davis.

GEM CITY STOVE MFG. COMPANY, Quincy, Ill.: German Heaters and Gem Ranges. Represented by H. H. Smith.

GREEN FOUNDRY & FURNACE WORKS, Des Moines, Iowa: Green Furnaces and Fittings. Represented by H. C. Avery, W. H. Swank and L. Walters.

HAWKEYE INCUBATOR COMPANY, Newton, Iowa: One Minute Washer. Represented by J. A. Winger.

HOME PRIDE RANGE COMPANY, Marion, Ind.: Greater Home Pride Ranges. Represented by L. K. Wynn.

HOME STOVE COMPANY, Indianapolis, Ind.: Model Stoves and Ranges. Represented by O. F. Alig and E. H. A. Van Sittert.

HUNT-HELM-FERRIS COMPANY, Harvard, Ill.: Star Hay Tools, Barn Door Hangers, Star Coaster Wagons, Sleds, Tank Heaters and Hardware specialties. Represented by G. H. and C. J. Chapman. Souvenir, paper weight.

I X L HANDLE MFG. COMPANY, Dexter, Mo.: Hickory and Oak Axe Handles, &c. Represented by T. J. Hill.

JOLIET STOVE WORKS, Joliet, Ill.: Moore's Stoves and Ranges. Represented by W. F. Garretson. Souvenir, bag tag.

KEITH FURNACE COMPANY, Des Moines, Iowa: Furnaces, Registers, Pipe and Fittings. Represented by G. D. Evans. Souvenir, memorandum book.

KEUFFEL & ESSER COMPANY, 127 Fulton street, New York: Large and varied line of Steel Tapes, Measuring Chains, Rules, &c. Represented by W. C. Hedtke.

LAHAN STOVE & MFG. COMPANY, Quincy, Ill.: Lahan soft coal Heater. Represented by C. W. Shinn.

LANDING-RUNNING COMPANY, Minneapolis, Minn.: Landing system of labor saving bookkeeping and Janesville cash and package carrier. Represented by H. J. Halvorson.

C. W. LASHER MFG. COMPANY, Davenport, Ia.: Pot Covers with stock cabinet and Kitchen Kumfort Plate Scraper. Represented by C. W. Lasher.

LENNOX FURNACE COMPANY, Marshalltown, Iowa: Lennox Furnaces. Represented by W. J. Heald, F. Kiesel and R. N. Miller.

LOWE BROS. COMPANY, Dayton, Ohio: Samples of High Standard Paints. Represented by J. J. Mahoney and H. R. Harris. Souvenir, watch fob.

LYONS SPECIALTY COMPANY, Lyons, Iowa: Peterson Steel Barn Door Latch and Holder and cast iron Chimney Caps. Represented by Wm. Peterson.

J. MCFARLAND, Centerville, Iowa: Subterraneous fire and burglar proof Safe. Represented by R. L. Guernsey.

JOHN MCVOY & Co., Chicago, Ill.: Galvanized and Black Sheets, Bright and Roofing Plates and Solder. Represented by R. L. Jones.

MAJESTIC MFG. COMPANY, St. Louis, Mo.: Majestic Malleable and Charcoal Iron Ranges. Represented by A. J. Collins and O. H. Robinson.

MALLEABLE IRON RANGE COMPANY, Beaver Dam, Wis.: Monarch Malleable Range. Represented by E. F. Cook and L. A. Munn. Souvenir, ash tray.

MALLEABLE STEEL RANGE MFG. COMPANY, South Bend, Ind.: Malleable Steel Range. Represented by R. E. Adams and H. C. Fowler. Souvenirs, cuff buttons and hat pins.

MARSHALLTOWN BUGGY COMPANY, Marshalltown, Iowa: Light Vehicles. Represented by L. M. Osborne, W. N. Hellen, F. E. Gates and W. A. Tuttle.

MARSHALLTOWN TROWEL WORKS, Marshalltown, Iowa: Trowels and Plasterers' Tools. Represented by J. W. Huston.

MARTIN & MARTIN, Chicago, Ill.: E-Z Stove and Metal Polish, &c. Represented by J. H. Foster. Souvenir, box of stove polish.

MILWAUKEE CORRUGATING COMPANY, Milwaukee, Wis.: Steel Ceilings and Side Walls, Conductor Pipe, Elbows and One-Piece Miters. Represented by W. Horn, Jr., P. E. Sauerwein and L. E. Thompson.

L. J. MUELLER FURNACE COMPANY, Milwaukee, Wis.: Mueller Furnaces, Steam and Hot Water Heaters, Registers, Valves, &c. Represented by G. C. Mueller, G. W. Johnson and J. B. Outland. Souvenir, watch fob.

MUSGRAVE FENCE COMPANY, Des Moines, Iowa: Farm, Field and Poultry Fence, Lawn Fences and Gates and Musgrave Worm Gear Wire Stretcher. Represented by E. C. Musgrave.

NICHOLLS MFG. COMPANY, Ottumwa, Iowa: Nicholls' Framing Square and Common Sense Miter Box. Represented by J. W. Huston.

NICKEL PLATE STOVE POLISH COMPANY, Chicago: Black Kid, Black Jack and Black Eagle Stove Polish. Represented by E. P. Rogers.

NORTH BROS. MFG. COMPANY, Philadelphia: American Twin, Blizzard, Lightning and Gem Freezers and Yankee Tools. Represented by De L. Rugg. Served ice cream.

OHIO VARNISH COMPANY, Cleveland, Ohio: Chi-namel Varnish and Warren Mixed Paint. Represented by G. C. Powers. Souvenir, bill book.

PATTERSON-SARGENT COMPANY, Cleveland, Ohio: B. P. S. Paint and China-lac Varnish. Represented by R. T. Moore and E. F. Tabor.

PEERLESS STEEL RANGE WORKS, Chicago, Ill.: Peerless Steel Ranges. Represented by H. J. Wanner, C. C. Eley and D. H. Keefe. Souvenir, memorandum book.

PITTSBURGH STEEL COMPANY, Pittsburgh, Pa.: Pittsburgh Perfect Fence, with demonstration of its strength. Represented by O. J. Goodwin and W. D. Ellsworth.

JOHN PRITZLAFF HARDWARE COMPANY, Milwaukee, Wis.: Samples of Fishing Tackle, Cutlery, Lawn Mowers, &c. Represented by J. H. Grunwald, M. Poeppinghausen, M. A. Heegaard, W. J. Konvalinka, F. A. Hughes and O. E. Wynne.

RATHBONE, SARD & Co., Aurora, Ill.: Acorn Stoves and Ranges and Gas Burners. Represented by W. R. Yendall, Jr., J. W. Forbes and J. H. Hartzell. Souvenir, stick pins and leather wallets.

REED MFG. COMPANY, Newark, N. Y.: Reed's Anti-Rust and Flintstone Enameled Ware. Represented by G. B. Streeter.

REYNOLDS REFRIGERATOR COMPANY, Omaha, Neb.: Chrystal Sanitary Refrigerator. Represented by C. W. Reynolds.

ROBESON CUTLERY COMPANY, Rochester, N. Y.: Window display and outside showcase for Shur Edge Cutlery. Represented by J. G. Funk and R. M. Fletcher.

ROCHESTER STAMPING COMPANY, Rochester, N. Y.: Display rack for Coffee Pots, pyramid rack for copper nickel plated goods and samples of heavy Tinware. Represented by J. G. Funk and R. M. Fletcher.

ROCK ISLAND STOVE COMPANY, Rock Island, Ill.: Riverside Stoves, Base Burners, Air Heaters and Ranges. Represented by A. B. T. Moore and S. D. Cleland. Souvenir, cuff buttons.

ST. PAUL ROOFING, CORNICE & ORNAMENT COMPANY, St. Paul, Minn.: Easy Bead Eaves Trough, Steel Ceilings, &c. Represented by A. M. Smith. Souvenir, combination pencil.

SCHREIBER & CONCHAR MFG. COMPANY, Dubuque, Iowa: Registers, Sad Irons, Fire Backs, Dampers, Corn Shellers, Anvils, Vises and specialties. Represented by J. A. Ryan.

SIMMONS HARDWARE COMPANY, St. Louis, Mo.: Wilson Steel Ranges and Heaters, Laclede Bicycles, Volo and Twentieth Century Sewing Machines, Siberia Refrigerators, Wonder Freezers, Delft Enameled Ware and Keen Kutter Lawn Mowers, Steel Goods and Tool Cabinets. Represented by T. C. Diamond, F. J. Wachter, N. D. Thompson, G. J. Duffett, L. C. Leyder, F. L. Farra, H. B. Christy and M. McCullum.

SIMONDS MFG. COMPANY, Chicago, Ill., and Fitchburg, Mass.: Samples of Simonds Hand Saws and automatic flash light display case. Represented by J. C. Miller and R. D. Baldwin. Souvenir, puzzle.

SIMPLEX WASHER COMPANY, Davenport, Iowa: Simplex Washers.

C. F. SMITH COMPANY, De Kalb, Ill.: Franklin Woven Wire Stretchers and Charles Wire Stretcher Gate. Represented by C. F. Smith.

STOWELL MFG. & FOUNDRY COMPANY, South Milwaukee, Wis.: Wilbern Adjustable Hangers, Hay Tools, Side Wall Registers, Parlor Door Hangers and specialties. Represented by R. A. Nourse and F. L. Stevens. Souvenirs, book marks, pen wipers and paper cutters.

VOSS BROS. MFG. COMPANY, Davenport, Iowa: Ocean Wave, Automatic, High Speed and Eclipse Washers. Represented by A. Clifford and W. H. Voss. Souvenir, ash tray.

WAHLE FOUNDRY & MACHINE WORKS, Davenport, Iowa: Snowball, Cascade and White Swan Washers. Represented by H. H. Wahle. Souvenirs, White Swan calendar and baseballs.

WAVERLY WOODENWARE COMPANY, St. Joseph, Mo.: Waverly Washer. Represented by H. C. Brodrick.

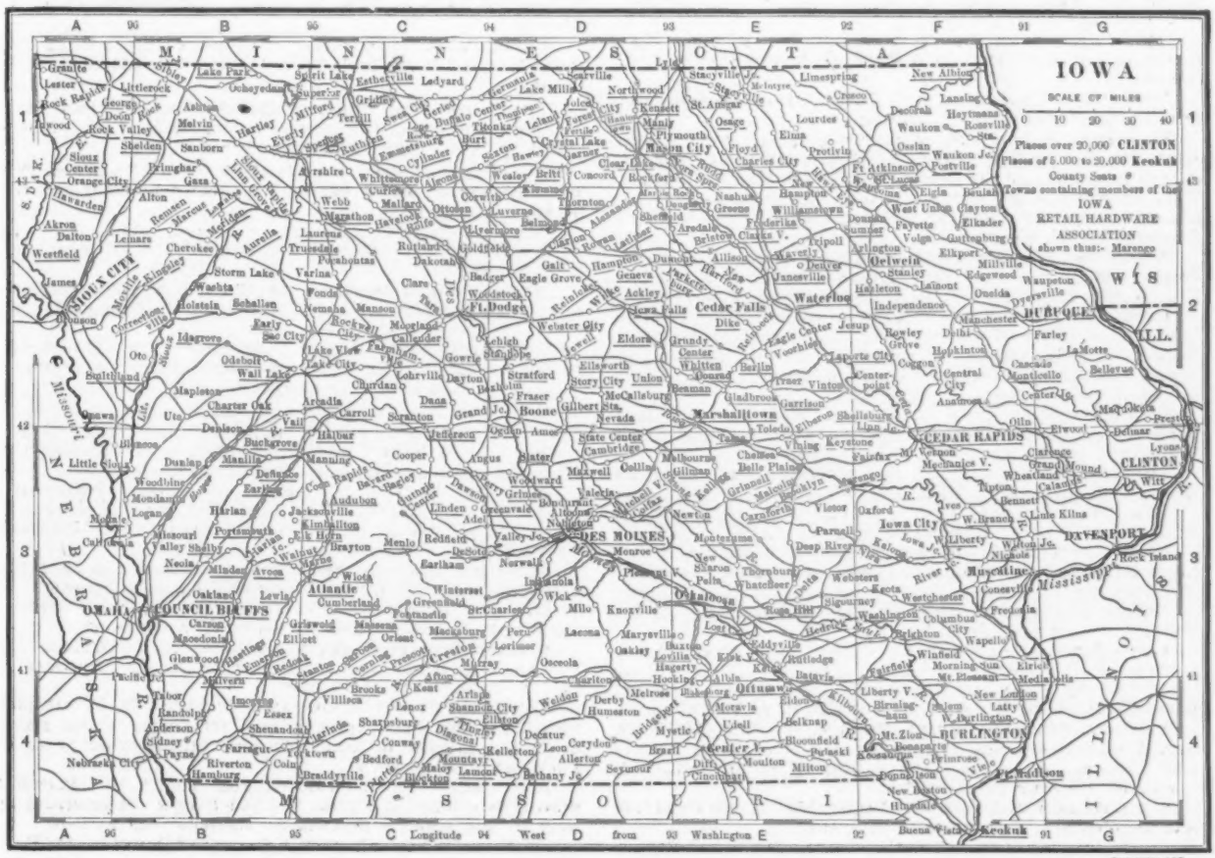
WESTERN STOVE WORKS, Peoria, Ill.: Pleasant Home Stoves and Ranges. Represented by H. F. Ossenback.

WHITE LILY WASHER COMPANY, Davenport, Iowa: White Lily, White Rose and White Daisy Washers and White Lily Gasoline Engine. Represented by S. T. White and J. C. Foss.

JAMES C. WOODLEY & Co., Chicago, Ill.: Steel Ceilings, Tinners' Supplies, Rubber Roofings and Sheet Metal Goods. Represented by C. F. Randall and T. J. Brown. Souvenir, cigars in miniature roll of roofing.

IOWA ASSOCIATION MAP.

A glance at the map of Iowa here reproduced will show at once how thoroughly the State has been covered by the Retail Hardware Association. Towns and cities containing members are underscored. Those having a population of over 20,000 are printed in capitals, as DUBUQUE; those of 5000 to 20,000 are in heavy face lower case type, while smaller places are in lower case Roman. Representation is about equally good in all parts of the State and the membership in the larger cities is especially



Hardware Association Map of Iowa.

complete. The association probably numbers well above 600 merchants with the host of accessions during the convention, although the exact figures are not yet obtainable.

MEMBERS IN ATTENDANCE.

An idea of the large representation of members at the convention may be gained from the following list, which, however, is not entirely complete:

Amesbury, Jay, Algona.
Anderson & Malmston, Swea City.
Armstrong & Stearns, Iowa Falls.
Anderson, J. W., Dawson.
Ahliff, Gustav, & Son Co., Grand Mound.
Behuri, L., Pomeroy.
Armbuster, M., Eagle Grove.
Abbott, L. C., Marshalltown.
Blackford, W. S. & Co., Bonaparte.
Briggs & Son, Red Oak.
Brasskamp, A. M., Alton.
Bowers, Joseph, De Soto.
Breckenridge, R. J., Brooklin.
Brunson, J. D., Callender.
Barber, E. C., Fort Madison.
Biggs & Moore, Waverly.
Blade, C. V., Stanton.
Bolinger & Barnum, Afton.
Baumgartner, W. B., Dubuque.
Bourne, Jas. C., Grundy Center.
Brown Lumber & Hardware Co., Macksburg.
Ballard, H. C., Redfield.
Brown, A. J., Blairsburg.
Beed, Chas. & Son, Hampton.
Beed, H. O., Hampton.
Behuri, L., Pomeroy.
Bloedile, A. L., Tabor.
Bruce-Edgerton Lumber Co., Meriden.
Brazor, W. E., Panther.
Bailey, Lee R., Mason City.
Boehmler Bros., Cedar Falls.
Beeman & Hewitt, Delta.
Beeman, J. R., George.
Batton, Crist, Co., Greenfield.
Bolton Hardware Co., Des Moines.
Babcock, B. O., Gowrie.
Benesh Bros., Chelsea.
Brown, P. C., Udell.
Beel, F. M., Shannon City.
Burkley, C. M., Waterloo.
Barger, C. S., Albia.
Buckley, Geo. C., Menlo.
Bussanmas, O., Bevington.
Brandt & Weber, Bellevue.
Cox, W. R., Alden.
Chandler, F. M., Gravity.
Clifford, L. C., Des Moines.
Clarke, D. R., Iowa Falls.
Cameron, W. C., Dubuque.
Clovis & Gage, Shenandoah.
Currie Hardware Co., Mason City.
Chapin, H. C., Union.
Carl, Meyer, What Cheer.
Carter, H. F., Hubbard.
Chambliss, Bluford, Walnut.
Crary Bros., Boone.
Conant, A. H., Toledo.
Craft & Son, Linden.
Campbell & King, Oelwein.
Connell & Co., Deep River.
Doty, J. F., West Liberty.
Dixon Hardware & Fence Co., Redfield.
Devaney & Son, Cascade.
Dangerfield & Co., Rinnard.
Deering & Son, N. W., Atlantic.
Devol, P. C., Hardware Co., Council Bluffs.
Dimmitt, Geo. M., Des Moines.
Duncan & Duncan, Albia.
Dack Hardware Co., Oskaloosa.
Defiance Hardware Co., Defiance.
Domino, A. B., Nemeha.
Evanson, Geo. S., Callendar.
Farquhar, H., Leon.
Forbes, Frank, Arispe.
Forsyth, L. M., Lynnville.
Fuller, A., Clarence.
Foesbey Hardware Co., Sioux City.
Franks & Sons, Onslow.
Griebeling, Chas., Newton.
Granzow & Boeke, Hubbard.
Grenawalt & Yost, Lamoni.
Gnam Bros., Carroll.
Glines, A. E., Reinbeck.
Grundmeier & Kemp, Manning.
Geiger, John, Ninden.
Gregory, H. H., Rutland.
Graham & Graham, Clarkville.
Goodwin, C. M., Pluver.
Harper, S. H., Ottumwa.
Hitchcock, Geo. A., Beaman.
Henderson, Ed., Lake Mills.
Hess, H. M., Guthrie Center.
Hanson, Albert, Odebolt.
Hansen & Hansen, Harlan.
Hetzel, F. G., Avoca.
Hoffman, A. J., Murray.
Hakeman, J. O., Southerland.
Hay Bros., Iowa Falls.
Haughton, H. T., Templeton.
Haverly Bros., Center Point.
Hartman & Son, Stuart.
Huntley, Geo. W., Waterloo.
Hagerman, D. H., Dyke.
Huff, G. B., Webster City.
Huston, B. H., Jefferson.
Hesse, L. W., Elliston.
Hicks & Reynolds, Manson.
Hay Bros., Iowa Falls.
Iowa Hardware Co., Vinton.
Jones, H. O., Paton.
Johnson, F. A., Farnhamville.
Jones, P. C., Toledo.
Jenks & Son, Prairie City.
Johnson & Kleippell, Gowrie.
Jones, J. O., Cushing.
Johnson Hardware Co., Boone.
Jameson, J. W., Dana.
Korn & Foulke, Hartwick.
Keating, C. R., Mount Ayr.
Kram & Bachtell, Waterloo.
Knerr, G. F., Allerton.
Koto & Perry, Forest.
Keating, M. W., Afton.
Kissock, James, Kellogg.
Kurtz, L. H., Co., Des Moines.
Luce & Silvers, Weldon.
Lomos & Son, Cresco.
Letson, J., Cylinder.
Lindenberg, L., Des Moines.
Leach & Thompson, Spencer.
Libbe, G. W., Lehigh.
Larimer, H. H., Sheridan.
Lowery, D. J., Jewett.
Lindkuist & Holt, Des Moines.
Lodine & Danielson, Albert City.
Lonning, J. E., Thor.
Lockwood & Son, Clarion.
Larson Hardware Co., Eldora.
Little & Gill, Prairie City.
Langworthy & Wyckoff, Massena.
McFadon & Strickler, Emerson.
McCarroll Bros., Ottumwa.
McQuiston, Wm., Muscatine.
McClintock & Co., Manson.
McClain & Sons, Granger.
McKlveen Bros. & Rogers, Lucas.
McMahon, J. L., State Center.
Mattes, Joseph, Odebolt.
Martin, J. H., Mystic.
Miller, H. A., Ackley.
Millard, W. H., Cherokee.
Messer & Son, Sheldon.
Marvin, F. P., Grinnell.
Miles, G. L., Grinnell.
Manke, Thomas, Newell.
Miles, S. R., Mason City.
Mueller, A. F., Greene.
Miner, O. C., Greene.
Markham, J. F., Rolfe.
Manson & Isaacson, Madrid.
Marquis, H. E., Colfax.
Marshall, S. S., Newton.
Newton, O., Pioneer.
Nolterieke Bros., Greene.
Naiden, H. R. & Co., Woodward.
Nichols, Thos. A., Burlington.
Nasby & Hauge, Bode.

Nelson & Nelson, Tingley.
Neelan, W. A., Glidden.
O'Conner, C. C., Grundy Center.
Osheim & Son, Thompson.
Ottumwa Hardware Co., Ottumwa.
Orcutt, The, Co., Sioux City.
O'Dea Bros., Des Moines.
Oswald Hardware Co., Grinnell.
Osceola Hardware Co., Osceola.
Peatman, C. A., Centerville.
Parker, C. A., Pocahontas.
Potter, A. L., Ames.
Peterson & Schoennig, Council Bluffs.
Porter Bros., Altoona.
Prusia Hardware Co., Ft. Dodge.
Penquite, A. A., Hardware Co., Colfax.
Pilcher Hardware Co., Ida Grove.
Prunty, B. S., Grimes.
Parsons, M. C., Iowa City.
Petty, J. H., Elliott.
Rugter & Whitmore, Estherville.
Ris, J. F. & Bro., Dubuque.
Robinson, J. W., Algona.
Ross Hardware Co., Lehigh.
Rayburn, H. S., Newton.
Reynolds Co., C. C., Indianola.
Roland & Johnson, Kelley.
Reimer, H. W., Walnut.
Ryerson, W. R., Shenandoah.
Rushia, Edwin, Ellsworth.
Reinholdt, C. H., Manning.
Rebak & Cramer, Toledo.
Reider & Peterman, Bagley.
Rumbaugh, G. L., Mingo.
Rea & Co., E. A., Corydon.
Shays, F. C., St. Louis.
Schmitt, C. F., Marshalltown.
Schindel, J. C., Merrill.
Speigelberg, G. A., Rembrendt.
Sayres, O. H., Cincinnati.
St. John, C. E., Melvin.
Strutz, H., Little Cedar.
Sparr, F. V., Cromwell.
Sobolik Hardware Co., Cresco.
Stacy & Weaver, Laurens.
Schmidt & Son, Avoca.
Shreves, S. L. & Son, Orient.
Storck Bros., Battle Creek.
Stakes, C. E., Clinton.
Smith, F. C., Kellerton.
Sears & Winn, Fontanelle.
Skable, J. C., Elberon.
Schmidt, C. W., Sheffield.
Sloan, Q. A. & Son, McGregor.
Staple, F. M., Spencer.
Swaine & Mauer, Council Bluffs.
Sprague & Son, Bagley.
Snavely Bros., Ladora.
Stukes & Son, Clinton.
Sprankle, E., Creston.
Simmons, C. R., Dallas Center.
Snyder, C. F., Norwalk.
Steigerwalk, J. S., Ames.
Shupe & Sons, J. W., Lacona.
Seither & Cherry, Keokuk.
Summerville, G. W., Wiota.
Schiel & Corson, Waterloo.
Schure, C. F., Williamsburg.
Shilling Bros., State Center.
Stought & Garrett, Delta.
Seibel Hardware Co., Sigourney.
Tollepson, C. T., St. Ansgar.
Tornell, O. W., Pilot Mound.
Thiel, P. H., Renwick.
Timmons, W. C., Prescott.
Toman, H. H., Cherokee.
Thomas & Co., C. H., Kent.
Trout & Mathias, Maquoketa.
Thomas & Son, B. F., Traer.
Talcott, J., Williams.
Trumbull & Pool, Conrad.
Thomas, W. S., Iowa City.
Twedt & Britson, Roland.
Vogel, W. F., Malcom.
Van Zante Bros., Pella.
Vieth, A. C., Oakland.
Viland & Shortman, Slater.
Verack, Henry, Ogden.
Wilson & Webbles, Mechanicsville.
Wilson, H. F., Henderson.
Walker, Frank C., Jessup.
Willis, C. L., Bedford.
Webbles, H. G., Mechanicsville.
Webb, Frank, Guthrie Center.
White, L. E., Nevada.
Walsworth, E. D., Fontanelle.
Wagner & Co., Ruthven.
Woodruff Hardware Co., Knoxville.
Welch & Wilson, Mediapolis.
Wiloth, Joseph, Marble Rock.
Wing, Louis, Somers.
Wilkinson, W. H., Hawarden.
Whorrall, J. W., Comrad.
Wheelock, W. M., Boone.
Whitfield & Whitfield, Akron.
Woodruff, F. W., Correctionville.
Weir & Farwell, Cumberland.
Wilkins & Manning, Victor.
Young, G. N., Woodline.
Young, G. J., Bellview.

PRICE-LISTS, CIRCULARS, &c.

Manufacturers in Hardware and related lines are requested to send us duplicate copies of catalogues, price-lists, &c., one copy for our catalogue department in New York and another for our London office; and at the same time to call our attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

ATLAS MFG. COMPANY, New Haven, Conn.: Illustrated pamphlet relating to Steel Shelf Brackets, with and without screws attached; Wire Coat and Hat Hooks and Retinned Tea and Table Spoons.

WEBSTER & PERKS TOOL COMPANY, Springfield, Mass.: Illustrated and descriptive catalogue with net prices of Simplex Trimmers, Straight Edges, Paste Tables, Folding Paste Boards, Rollers and other Paper Hangers' Tools.

J. STEVENS ARMS & TOOL COMPANY, Chicopee Falls, Mass.: Pamphlet entitled "The Story of the Stevens," devoted to Guns and Rifles.

BONNEY VISE & TOOL COMPANY, 3011-3015 Chestnut street, Philadelphia, Pa.: Catalogue for 1906, devoted to Amateurs', Machinists', Coach Makers' and other Vises, Combination Pipe and Monkey Wrench and Pipe Cutters, Machinists' Tools and Hardware Specialties.

CUTAWAY HARROW COMPANY, Higganum, Conn.: Catalogue devoted to Harrows, Grass Hoes, Weeders, Plows, Cultivators, Tobacco Presses and Jacks, Cider Mills and Presses, Knife Grinders, Root Cutters, Lawn and Field Rollers, &c.

STOVER MFG. COMPANY, Freeport, Ill.: 1906 catalogue of Ideal Hardware, including Builders' and Shelf Hardware, Hardware Specialties, Gray Iron, Brass and Aluminum Castings.

MAINE MFG. COMPANY, Nashua, N. H.: Folder devoted to White Mountain Refrigerators.

JANNEY, STEINMETZ & Co., Philadelphia, Pa.: Catalogue relating to the company's Pressed Steel Tank department, devoted to Pressed and Seamless Drawn Steel Specialties. These include Seamless Steel Tanks, Shells and Cylinders, Reservoirs, Flanged Shells, Boiler Shells, Bowls, Rings and Special Shapes, Drums, Gasoline Lock Valves for automobiles, auto boats, auto cycles and launches and indicators for Gasoline Tanks.

HOBBS MFG. COMPANY, Worcester, Mass.: Pamphlet price-list of American Wire Lock Washers and wire common washers. The company also manufactures a line of wood-working machinery.

C. E. JENNINGS & Co., 42 Murray street, New York: *Fac-simile* circular in colors of the New Southington Yellow Jacket Steel Square.

KNAPP & SPENCER COMPANY, Sioux City, Iowa: Fifth edition of new insert sheets for the company's loose leaf catalogue.

THE H. B. IVES COMPANY, New Haven, Conn.: 1906 illustrated catalogue No. 12 relating to Hardware Specialties, including Sash Locks, Window Stop Adjusters, Mortise Door Bolts, Shutter Knobs, Sash Lifts, Sash Pull Down Hooks, Casement Window Fasteners, Door and Drawer Pulls, Car Window Locks, Sash Cord and Weight Fasteners, &c.

PROCTOR-RAYMOND MFG. COMPANY, 40-44 East Larned street, Detroit, Mich.: Illustrated catalogue and price-list devoted to Electric Bells, Buzzers, Telephone Bells, Cast Bell Metal Gongs, Anthony Boring Tools, Machine Bits, Dry Batteries, Electric Bell Outfits, &c.

THE GREEN HALTER COMPANY, Urbana, Ohio: Catalogue illustrating Rope and Web Halters, Cattle and Horse Ties. Some of the Rope Halters are furnished with red and yellow trimmings, and are so shown in the illustrations. The company keeps a full stock of all its products on hand, to insure prompt shipments.

MAINE MFG. COMPANY, Nashua, N. H.: Booklet pertaining to the company's line of Stone White Refrigerators. This Refrigerator is referred to as "the chest with the chill in it." Illustrations show the line and various parts of the Refrigerators.

IRA F. WHITE & SON, 144 Walnut street, Newark, N. J.: Illustrated circulars devoted to Paring Knives, Carvers, Slicers, Butcher Knives, Household Cleavers, Can Openers, Putty Knives and Kitchen Sets of Knives.

JOHN HASSALL, 171 Elm street (recently renamed Lafayette street), New York: Illustrated catalogues relating to Catches, Trimmings, Ornaments, &c., for jewelry cases, plush cases, fancy wooden boxes, paper boxes, picture frames and novelties; also Wire Nails, Brass and Iron Escutcheon Pins and Rivets.

J. R. DAWSON MFG. COMPANY, 1520-22 North Palethorp street, Philadelphia, Pa.: Catalogue No. 16, devoted to Household and Office Wire Goods, including Plate, Cup and Saucer, Platter, Picture, Plaque and Card Easels; Garment Hangers, Soap and Sponge Holders, Bird Cage Springs, Wire Kitchen Articles, Cork Screws, Ice Tongs, Coat and Hat Hooks, &c.

DEATH OF GEORGE KRAUSE.

GEORGE KRAUSE died at his home in Lebanon, Pa., February 16, after a long and painful illness, in his seventy-fourth year. For over half a century Mr. Krause was in the Hardware business in Lebanon, where he was born, and at his decease was president of the corporation bearing his name. Mr. Krause was born October 5, 1832, and entered his father's store in his eighteenth year. In 1870 John D. Krause, the father, retired, and Mr. Krause and his brother Joseph succeeded under the firm name of George Krause & Co. A few years ago a charter was applied for and the business was incorporated under the title of George Krause Hardware Company. Mr. Krause was much devoted to the business, seldom absenting himself from it. From modest beginnings there grew to be four large establishments, dominated by the father and several sons, three of which mercantile enterprises, in Hardware and other lines, are still actively in existence. Mr. Krause was also identified with a number of other undertakings in manufacturing, transportation, etc., and was a man of great force of character and possessed of a strong will. On September 24, 1904, Mr. Krause and his wife celebrated their golden wedding anniversary. He is survived by a widow, four sons and one daughter.

Nebraska Retail Hardware Association.

CONCLUDING REPORT.

IN our last issue the proceedings of the opening session, on Tuesday afternoon, of the fifth annual convention of the Nebraska Retail Hardware Association at Lincoln were reported by telegraph.

Steel Ranges.

Wednesday morning opened up bright and clear with the lowest temperature recorded locally thus far this winter. The first speaker was H. T. Moore of Alma, who explained the absence of a carefully prepared paper on his subject, "Steel Ranges, Standard Makes; Are the Prices Too High?" by saying that he had failed utterly to secure any information from manufacturers of ranges as to the cost of producing their goods, and that for that reason he was not able to quote any figures to illustrate the point he hoped to make. He spoke extemporaneously and with great vigor in support of his conviction that present prices on steel ranges were unnecessarily high. He said that it was now well known that the cost of pig iron and other materials that enter into a range represented but a small portion of the selling price of a range, and that the present high market on pig iron was no justification for recent advancement. Indeed, the ranges now being sold were made from pig iron that was bought during the low market of last summer. He believed that legitimate manufacturers were defeating themselves and surrendering a large portion of their business to the mail order houses by their desire for excessive immediate profit.

In his own case he said that he had to pay from $42 to $45 at the factories for first-class steel ranges, and that his freight was from $5 to $7 on each range. Meanwhile his legitimate customers were being tempted with offers of about $42 on steel ranges from the catalogue houses. Some of them had frankly stated to him that they were willing to pay him a profit on a range instead of buying from a mail order house, and that they were perfectly willing to pay him $50 for a high-class range, but that they could not pay him the price he was asking, because they did not believe there was that value in any range.

National President's Address.

W. P. Bogardus of Mount Vernon, Ohio, president of the National Retail Hardware Association, delivered a stirring address on the subject of the proposed parcels post, several bills for the provision of which are now before Congress. Mr. Bogardus made an able and effective reply to the arguments brought forward by the catalogue and mail order houses and others who are clamoring for a parcels post, although he referred to the "arguments" as "statements that need verification." Mr. Bogardus concluded as follows:

To-day is not all. There is a to-morrow when your children and mine will be here seeking to gain a livelihood. If the business of the country is concentrated in the large cities they will be built up at the cost of the country towns and villages. The small city and town and rural population are the hope of any country. And the very large city is a constant menace to good government, to honesty and probity. Do we need any illustrations to prove this statement? I refer you to the current papers and magazines to verify what I have said.

If this be true is it not our duty as citizens to oppose all efforts to build up the city at the expense of the country? Is there not room enough for all of us? Why should it be necessary for any of us to build on the ruin of others? The people will stand for some injustice, but when the burden gets too heavy they will rebel.

Following his paper Mr. Bogardus spoke extemporaneously in discussing points not covered by it.

One of these was the proposed measure

TO CONSOLIDATE THIRD AND FOURTH CLASS MATTER

at uniform rate of 8 cents per pound. He asked the members to oppose this measure vigorously because it was an entering wedge in the parcels post campaign and because it was favored by the mail order houses, the largest of which would save perhaps $200,000 a year in the mailing of its catalogues alone. He asked every member to write an individual letter to his Congressman asking the latter to pledge himself positively against all reductions in postage on merchandise, and explained why it was that a personal letter was more effective than petitions or any other effort.

NATHAN ROBERTS.

MAX UHLIG.

S. C. OAKS.

FRANK HACKER.

Shall Farmers' Assistance Be Sought?

A member asked whether it was advisable to seek to enlist up-to-date farmers in the campaign against parcels post. A good deal of discussion resulted, the consensus of opinion being that while it was very true that the complete triumph of the mail order idea would mean the overthrow of the local merchant and destruction of towns and villages, the farmer had not yet reached the point of education where he could see that he would be the loser by depreciation in property values that would result. It was therefore suggested that great caution be used in attempting to solicit the co-operation of the farmers until they had reached a stage of enlightenment on this subject that would bring them to see that their interests after all were identical with those of their local merchant.

THE PLAN WAS COMMENDED

of asking the co-operation of local editors in disseminating information that would show their readers the menace of the catalogue houses. In this connection it was suggested that the idea would be popular with farmers as well as with every other class of thinking men that the benefit of the whole people would be served by the expenditure of more money on the part of the Government in the assistance of the "good roads" propaganda and less in the nature of postal subsidies to favored classes in the shape of carrying matter for them at less than cost.

A. L. McDonald's Paper.

The Wednesday afternoon session was opened with a paper by A. L. McDonald of Eagle on the subject "How to Get Our Home People to Patronize Our Local Stores." After a witty introduction Mr. McDonald said in part:

This question can be answered in just five words—Give them a square deal. If you want to keep your business at home, strive to teach the farmer to call at your store and see your goods and give you a chance to explain their merits, and then give him to understand that you are going to give him a square deal, and that he is getting good value for his money. Impress upon his mind that you are his friend and, as such, are interested in his welfare, and that you are not in business to rob him, as a great many of the farmers seem to think.

MAKE THE FARMER'S INTEREST YOUR INTEREST.

Rely on quick sales and small profits and you will be able to hold most of your customers. Fix a fair profit on your goods and be fair with him, and you will hold his trade. Most of the farmers keep in touch with each other, and if you stick a pin in one of them they all jump. In other words, if one of them gets it into his head that you have charged him too much for his goods, every farmer in the vicinity has his stinger out ready to plug it into you.

Always treat your customers courteously, no matter if your wife has combed your hair in the morning with a garden rake; treat your customers with a smile. If not busy, sit down and visit with them. Interest yourself in their matters, and they will come in often and visit you, and by so doing you will gain their confidence and their trade.

HARRY J. HALL.

ALEX. F. MEYER.

ALBERT DEGNER.

J. FRANK BARR.

Charles Smith's Address.

Charles Smith of Chicago, manufacturer of the Hero Furnace, gave one of his characteristic addresses, full of enthusiasm and good humor. He dwelt on the importance of enthusiasm, tact and good nature in the sale of goods and drove home one vital fact that in any circular advertising campaign the merchant was losing an opportunity to advance his business when he limited his mailing lists to his friends. "Send your circulars to strangers and not to your friends, if you cannot send to both," was the advice of the speaker.

Mutual Insurance.

W. P. Lewis, New Albany, Ind., treasurer of the National Mutual Fire Insurance Company, made an interesting address on Hardware mutual insurance, from which we make the following extracts:

I am here as an officer of the National Mutual Fire Insurance Company. As such I received the invitation for this address, but I wish it understood that I appear without prejudice toward any other Hardware mutual insurance company, and I prefer to be regarded as an advocate of what seems to me to be the sane, safe and successful principle of mutual fire insurance as applied to the Hardware dealer.

The late Edward Askinson was the greatest American authority in fire insurance economics that ever lived. With him it was a deeply studied science. In him there was brought to bear a mind of comprehensive grasp, plus powerful concentration. I dwell thus at length on the character of Mr. Atkinson because the figures, facts and statements concerning the great stock companies, which I shall use as a basis of comparison, are taken from what was probably the last paper he wrote for publication. It apeared in October, 1905. The figures which I shall use, representing the Hardware Mutual's business, are taken from statements made to me by each secretary. These statements bring the companies' affairs up to January 1, 1906, and have been tabulated and the results are correct.

COMPARISON NO. 1.

Mr. Atkinson says that for ten years the stock fire insurance companies of this country received in premiums $1,000,000,000, and that their losses and expenses exceeded this sum by $18,000,000. This is equivalent to saying that their losses and expenses were approximately 2 per cent. more than their income from premiums. As against this, note the total premiums of the Hardware Mutual's to January 1. These were $318,000; total losses and expenses were $136,000. This means that the Hardware Mutual's losses and expenses were 57 per cent. less than their income by premiums, as against 2 per cent. more than the income from premiums on the part of the stock companies, or, stated in another way, the Hardware Mutuals make a showing of their losses and expenses, in relation to their premiums, which is 59 per cent. better than the same showing made by the stock companies.

At this point I shall interrupt the comparison series for two purposes. First, to answer a natural query, and, second, to make an observation. The query which has likely arisen in many minds is, How can a stock company continue in business and prosper when its losses and expenses exceed its income from premiums? I shall request Mr. Atkinson to answer this question. He says: "The gains the stock companies made under the foregoing adverse conditions come wholly from their functions as bankers." Their capital, their previous surplus and the use of cash premiums for one year gave them an income as bankers of about $60,000,000. I think this makes it clear that a stock company may prosper even though its disbursements slightly exceed its receipts from premiums.

The observation I wish to make is that if the Hardware Mutuals were quickly recognized and freely patronized, as they are more than entitled to be, they too would have surpluses and cash premiums sufficiently large, the interest or income from which would easily meet all operating expenses and even more, leaving, therefore, fire losses only chargeable against premiums. A fire insurance contract at the least possible cost and of the greatest security would thus be offered all the members of hardware associations.

COMPARISON NO. 2.

Mr. Atkinson further says that the losses of the stock companies have been about $6 on each $100 of insurance carried during this period. As against this note the record of the mutual companies. The total insurance carried is $7,000,000; the total fire loss, $78,000, or a sum less than $1.10 on a $100. Stock companies' loss, $6 on the $100; Hardware Mutuals' loss, $1.10 on a $100.

COMPARISON NO. 3.

Mr. Atkinson says that the expenses of the stock companies were about $4 on the $100 of insurance carried. The total expenses of all the mutual companies were $58,000. This amount equals 77 cents on $100 of insurance carried for our mutual companies, as against $4 for the stock companies.

OPERATING EXPENSES.

Mr. Atkinson asks, Can expenses be diminished? He says: "I once thought them excessive, but the expense account of the largest and best managed stock companies, worked with the utmost skill and energy, are 33 per cent. of their premiums." Mr. Atkinson's state-

ment in this instance must be very conservative, for I have always heard that it took 40 per cent. or more to meet expenses of the stock companies. However, we shall accept the 33 per cent. version.

And I ask that you note carefully this statement, namely, that the average operating expense of the eight mutual companies is under 18 per cent., as against 33 per cent. for the very best managed stock companies.

In summarizing therefore this analysis we find:

	In mutual companies.	In stock companies.
That losses and expenses equal (per cent. of premium)	43	102
That losses on each $100 of insurance carried equal	$1.10	$6.00
That expenses on each $100 of insurance carried equal	.77	$4.00
That the average operating expense equals (per cent. of premium)	18	33

THESE FIGURES GIVE A STARTLING VIEW,

and yet these results are not surprising, because the insurance principle on which our mutual companies are based is the soundest possible business proposition—namely, the limited policy on a class risk among a membership of high average character and personally known to the officers of the company or at least to the officers of any given State association. In contrast with and set over against these lines on which our mutual companies are moving and building, note the plan of the stock companies. First, an unlimited policy; second, taken on miscellaneous risks; third, among applicants of every nationality, creed and profession. The foregoing summary is a

DEMONSTRATION OF THE SUPERIORITY

of our national plan over the stock company plan. Who can deny that ours is a sound, safe and almost ideal principle on which to build a great mutual company? Who can harbor a doubt that these companies are managed by the members and for the members and that profits are paid to the members annually?

Mr. Lewis' address was followed by a general discussion in which the speaker was called upon to answer many questions of a practical nature.

H. J. Hall spoke on behalf of the Nebraska State Mutual Hardware Insurance Company, stating that the company had about $150,000 in force, and that during the year just closed the total fire losses only amounted to $6.08. Members present made application during the session for insurance amounting to a large sum.

John F. Zimmer, secretary of the United Mutual Insurance Company, was invited to address the convention, and he did so, giving a quick *résumé* of the reason for failure of many mutual companies operating in the State of Nebraska, reading from the last report of the Insurance Commissioner an array of figures that showed clearly that it was extravagant waste and mismanagement rather than large fire losses that had led to the failure of 26 companies covered by the report. Fire losses had averaged little over 50 per cent. of total receipts. With this as a text he commended the eight Hardware mutual associations covered by Mr. Lewis' paper for being able to hold down the operating expenses to 18 per cent. of their receipts.

Association Benefit.

Walter Gaebler of Winside read a paper entitled "What Good Has Our Association Done Us?" After discussing the social and educational features of the association he expressed a belief that one of the greatest accomplishments of the association was the changed attitude of the jobbers and the spirit of co-operation which they evinced in assisting the retail merchants to fight the battle against the catalogue houses. He commended jobbers for placing on their letterheads the statement "We do not sell catalogue houses" and for their general policy of refusing to sell at retail. He also spoke of the good work that has been done by the National Association in inducing manufacturers to decline to sell to catalogue houses, or if selling to establish a minimum price at which their goods could be quoted by the mail order houses, the prices being sufficiently high to protect the retail merchant. He also commended the insurance feature, crediting the Hardware mutual companies not only with the saving accomplished through insurance placed with them, but also explaining how this competition had enabled Hardware merchants throughout the State to secure reduced rates from the old line companies.

Question Box.

Kimel Barns of David City, chairman of the Question Box Committee, read a series of questions that had been presented and led the discussion on each. Some of the questions and answers were as follows:

Do you know of any plan by which prices on Builders' Hardware bills need not be cut and each dealer still receive his due share of the business?

Carry a line that you can control in your territory—a special brand that others have not—and talk quality rather than price. It is a matter of salesmanship.

Nathan Roberts of Omaha described this problem as one of the easiest of solution, instead of the most difficult, for the reason that the manufacturers were in an association that made prices identical on similar grades and finishes. He advised the members and their competitors who were not members to get their cool heads and warm hearts together and to form an agreement to sell on a certain fixed percentage above factory costs.

How can we eliminate ruinous competition that comes from the existence of farmers' telephone lines through merchants in adjoining towns? What means can be adopted to bring neighboring dealers to a mutual understanding?

Morris Hussie of Omaha believed that the association itself furnished a solution to this problem and that it was only necessary to induce competing merchants in adjoining towns to become members as a step preliminary to a mutual understanding that would prevent competition from becoming ruinous.

Ray Weaverling of Peru testified that farmers' telephone lines had made neighborhood competition less ruinous than before, because it enabled each dealer to call up his neighboring competitors and ascertain the truth or falsity of statements made by farmers that certain cut rates were being made.

What is the best method of meeting the competition of general stores that run bargain counters and sell Hardware and Tinware at cut prices?

Do all in your power to educate farmers to a desire for a better class of goods than is sold by the racket stores. Also refuse absolutely to buy from traveling salesmen who sell to racket stores.

In this connection the practice of grocers selling Hardware articles was discussed, Mr. Goehner, among others, saying he had met with excellent results by heart-to-heart talks with grocers themselves.

What shall we do with the blacksmith, the gasoline peddler, the well man, the painter, the wagon maker, the thresher man and other large consumers of our products who buy direct at wholesale prices from jobbing houses who also seek our trade?

This question provoked spirited discussion, which was not without some very direct personal thrusts at jobbers, whose names were given, who had so far forgotten their duty toward the retail Hardware merchant as to sell at wholesale prices to consumers of the class named.

Morris Hussie of Omaha advocated a vigorous movement that would make it necessary for jobbers to put on their letterheads, side by side with other declarations of virtue, a legend reading: "We do not sell to contractors or consumers, large or small."

Separating the Sheep from the Goats.

Nathan Roberts introduced a resolution which was unanimously carried, every member present evidently voting, the substance of which was as follows:

Resolved, That the secretary of this association be instructed to secure a list of the names of jobbers and manufacturers who have agreed to assist the local merchants by refusing to sell to catalogue houses, as well as those who have failed or refused to render such assistance, and that such lists be mailed to every Hardware merchant in the State of Nebraska, whether a member of the association or not.

Secretary's Report.

The completion of the unfinished business and the election of officers occupied the attention of members Thursday morning. The report of the secretary of the association, J. Frank Barr, to the Executive Committee, was read by Nathan Roberts, chairman of that committee.

It showed that the secretary, nothwithstanding a serious railroad accident which laid him up in the hospital for two months and obliged him to walk on crutches for four months more, had efficiently kept up the work of the association. The membership at the time the report was prepared was 244, showing an increase of nearly 100 members during the year. With the accessions during the meeting the total is now well beyond the 300 mark.

Resolutions.

The following resolutions reported by the committee appointed for that purpose were adopted:

Whereas, The business fraternity of the larger cities reach out more and more toward the country trade tributary to their own cities, in consequence thereof they have worked up a parcels post bill in Congress of the United States of America; and

Whereas, The passage of such parcels post bill would work against the interest of the country at large; therefore, be it

Resolved, That we recommend that all the dealers of the association be asked to write personal letters to their Congressmen and Senators to do all in their power to defeat the parcels post bills now before them; further

Resolved, That we recommend that letter postage be reduced from 2 cents to 1 cent; further

Resolved, That the retail Hardware dealers have organized a mutual insurance company for the special benefit of the Hardware dealers; and whereas this insurance plan is not properly patronized; we therefore recommend that each and every member of this Hardware Dealers' Association give a part of his insurance business to promote the interest of this insurance feature; further

Resolved, That as W. P. Bogardus, president of the National Retail Hardware Association, has honored us with his presence, we therefore ask the convention for a vote of thanks and to request him to be with us again next year.

Resolved, That the members also be asked to give a vote of thanks to S. R. Miles of Mason City, Iowa, for the very valuable paper and views with which he favored this meeting.

Resolved, That a vote of thanks be given to W. P. Lewis of New Albany, Ind., for his many points of instruction on mutual fire insurance; also to the local press and the management of the Lindell Hotel, the local jobbers and retail merchants who have furnished the entertainments for us. We furthermore recommend a vote of thanks to our president, Max Uhlig; J. Frank Barr, secretary, and H. J. Hall, treasurer, for their untiring efforts, which have made this meeting one of the best we have had since the start of this organization.

The following resolution, submitted by mail by ex-President J. C. Cornell of Ord, was carried unanimously:

Whereas, In past years some manufacturers of Hardware have shown an inclination and desire to distribute their line of goods through wholesale grocery channels and through them to the retail grocery and racket stores; and

Whereas, Especially the distribution of standard lines of Hardware through such channels tends to demoralize prices and create unpleasant and objectionable competition to the regular Hardware dealer; be it

Resolved, That we recommend to our members the importance and advantage of confining their purchases to the regular Hardware jobber; and further

Resolved, That we regard it to be to the interest of the manufacturers as well as to our interest if manufacturers would limit their sales to the Hardware dealers who have materially assisted in building up the reputation and standing of standard lines of goods in the market.

Another resolution, introduced by Treasurer Hall and carried unanimously, was as follows:

Resolved, That the secretary be instructed to request all jobbers shipping into Nebraska to decline to consign goods of any character to consumers, whether on merchants' orders or not, and whether in the merchant's own town or in an adjoining town, all goods ordered by retail merchants being consigned to that merchant in person.

It was explained that adherence to such rule on the part of jobbers would obviate many misunderstandings and save much unnecessary complaints and correspondence.

Officers Elected.

The Nominating Committee recommended the following officers for the ensuing year, who were duly elected:

PRESIDENT, Nathan Roberts, Omaha.
FIRST VICE-PRESIDENT, H. T. Moore, Alma.
SECOND VICE-PRESIDENT, C. L. Kelly, North Bend.
THIRD VICE-PRESIDENT, S. C. Oaks, Seward.
EXECUTIVE COMMITTEE.—Daniel Kavanaugh, Fairbury; Frank Hacker, Friend; J. H. McGrath, Hastings.

The Executive Committee met later in the day and failed to decide whether Secretary Barr should succeed himself or whether a new secretary should be selected. Mr. Barr had received an offer from another source, and the question was whether the association should meet the offer or not. Mr. Hall asked to be relieved of the duties of treasurer, but he was asked to act *pro tempore* until a permanent officer could be selected.

Place of Meeting.

Omaha, Lincoln and Fairmont were all candidates for the entertainment of the 1907 convention, but the Omaha contingent carried the day by a large majority.

Change in Officials of the Insurance Mutual.

During the convention slight changes were made in the officers and directors of the Nebraska Hardware Mutual Insurance Company. Max Uhlig of Holdredge was made first vice-president in place of F. D. Kees of Beatrice, resigned, and V. Freid of Oakland was elected to the Board of Directors in place of Chas. P. Schnider of Syracuse. The other officers of the insurance company stand as follows: President, H. J. Hall, Lincoln; secretary, J. Frank Barr, Lincoln; treasurer, J. F. Goehner, Seward. Directors: Nathan Roberts, Omaha; Thomas Nelson, Diller; F. C. Harrington, Pawnee City; A. E. Small, Crete; Leon Baker, Lincoln; S. C. Oaks, Seward; Ernest Hoppe, Lincoln; L. F. Halloway, Fremont.

The Banquet.

On Wednesday evening every inch of space in the main dining hall of the Lindell Hotel was required to accommodate the 325 guests who sat down to the annual banquet. This banquet was tendered the visitors by local jobbers, manufacturers and members. Robert M. Joyce, secretary of the Lincoln Hardware Company, was toastmaster, and his introductions in every instance were happy and to the point.

"Lincoln, a Distributing Point," was the subject of an interesting address by H. M. Bushnell, proprietor of the Lincoln *Trade Review*. A brilliant and witty address was delivered by W. A. Maupin, business manager of the *Commoner*, under the title of "Hardware from the Viewpoint of the Press." Mr. Maupin, among other things, declared that if retail merchants would spend as much money as the mail order houses do in proportion to their capital in advertising their bargains, there would no longer be a "catalogue house problem." "Reminiscences of a Traveling Man," was the subject of Nim W. Norris of the firm of Bartlett & Norris. His talk consisted mainly of comical incidents and "grinds" on his confreres. "The Ladies" were toasted by H. J. Hall, treasurer of the association, in a spirit of earnest sincerity and lofty idealism. J. W. Hahn, an early Lincoln resident, who has spent the last twenty years of his life in Germany for the United States Government, but who has recently renewed his residence in this country as a representative of the Kokomo Steel & Wire Company, delivered a witty address in the German language. Impromptu remarks were also elicited by the toastmaster from Mr. Hebnke of Grand Island, Henry Veith of Lincoln, Mr. McDonald of Eden and Charles Smith of Chicago.

CONVENTION NOTES.

The badge of the association was made of blue satin printed in gold with a cut of a Base Burner, under which appeared the words, "Nebraska Hardware Dealers' Association Annual Convention, February 13, 14 and 15, 1906." At the top of the badge was a gold frame surrounding a celluloid panel bearing the word "Member," and pendant from this was a heavy bronze plate cut out and printed to represent a map of the State of Nebraska.

The Iron Age was the only trade paper having a direct representative on the ground throughout the Nebraska convention.

During the convention the visiting ladies to the number of over 30 were entertained by a Reception Committee headed by Mrs. H. J. Hall of Lincoln. Tuesday evening they were entertained at the residence of C. H. Rudge with a musical programme, and on Wednesday they were guests at a matinee performance of "The Old Homestead."

Though the members in session at the Nebraska convention were not slow to read the riot act to Lincoln and Omaha jobbers for real or fancied wrongs they were quick to rise to the defense of the Missouri River job-

bers as a class against the Mississippi River or Chicago jobbers. "Nebraska for Nebraskans" was plainly the sentiment of the association as a body.

Exhibitors at this convention report that at no previous convention had they taken as many actual orders, and that the amount of prospective business on their books as a result of the convention was most encouraging.

The chafing dish presented to the association by the Rochester Stamping Company was won by Ericson, Edburg & Ericson.

The souvenir programme of the Nebraska convention was one of the best of the year published by any association, and was a source of considerable revenue to the association.

Henry Veith of Lincoln introduced a happy diversion into the convention by passing around baskets full of big red apples. His ready wit and good sense were also conspicuous in the discussions.

W. W. Walton, Nebraska and Colorado representative of the Patterson-Sargent Company, Cleveland, Ohio, is pursuing a novel method of introducing the preparations made by his firm, direct to the retail merchant without the intervention of the jobber. While the campaign outlined by him is intended to push the sale of all the products of his company, it is particularly designed for creating a demand for China-lac. Mr. Walton carries with him materials for dressing a show window in elaborate Chinese style. A handsome young woman, dressed in Chinese costume, acts as demonstrator and, by means of pantomime and the use of legends and sentences printed on cards, tells her story to the crowd standing outside the window. She also applies China-lac and other preparations to pieces of wood to show the ease with which the work is done. Mr. Walton, who had a display of this sort during the Nebraska convention, stated that he had been exhibiting through Colorado for the last two months, and that in every instance the demonstrations attracted large crowds and led to an extensive sale of his products.

EXHIBITS.

The Nebraska convention was characterized by an unusually large and varied display of Hardware. The principal exhibits installed in the rotunda hall, corridors and guest rooms of the Lindell were the following:

ABERNATHY FURNITURE COMPANY, Kansas City, Mo.: represented by Frank Rosebrough, resident agent.

ACME WHITE LEAD & COLOR WORKS, Detroit, Mich.: Samples of Paints and Colors, exhibited by George E. Isaman of Hastings, Neb., and B. A. Manning of Detroit. Souvenir, cigar clipper.

AMERICAN STEEL & WIRE COMPANY, Chicago: Display of American and Ellwood Woven Wire Fencing and Corn Cribbing; in charge of L. W. Garoutee, Park B. Garoutte and John Q. Park.

BARTLETT & NORRIS, Lincoln, Neb., and Kansas City, Mo.: Display of samples from Malleable Steel Range Company, South Bend, Ind.; Gem City Stove Company, Quincy, Ill., and Chicago Stove Works, Chicago; in charge of R. F. Bartlett and M. W. Norris. Souvenirs, stick pins, pocketbooks and hat pins.

DUNLAP MFG. COMPANY, Dunlap, Iowa: Display of Adjustable Stove Pipe, Revolving Chimney Top and Peterson Barn Door Latch; in charge of H. Kellogg.

ELECTRIC HEAT REGULATOR COMPANY, Minneapolis, Minn.: Demonstrated by L. A. Norton, proprietor, and Pound's Plumbing Company, local representative.

EMPKIE, SHUGART, HILL COMPANY, Council Bluffs, Iowa.: Display of Sporting Goods and Hardware specialties; in charge of E. L. Empkie, E. B. Zimmerman and Clarence Higinbotham. Souvenir, want book.

ESTATE OF P. D. BECKWITH, Dowagiac, Mich.: Display of Round Oak Stoves and Ranges; in charge of H. L. Mosher, advertising manager and manager of Furnace department, assisted by I. G. Stiff. Souvenir, a novelette written by Will Lightfoot Visscher.

EXCELSIOR STOVE & MFG. COMPANY: Display of "Neutipe" Cooks and Ranges; in charge of J. W. Payton and W. J. Fisher. Souvenirs, watch fobs, memorandum books and calendars.

GEE-WHIZ MFG. COMPANY, Des Moines, Iowa: Demonstration of Washing Machine; in charge of M. R. Davis, secretary and Manager.

GREAT WESTERN STOVE COMPANY, Leavenworth, Kan.: Display at store of Branch & Miller; represented by Wm. Bischof, Jr.

HERRICK REFRIGERATOR COMPANY, T. H. Smith, sales agent: Display at store of Rudge & Guenzel Company.

HIBBARD, SPENCER, BARTLETT & CO., Chicago: Display of Firearms and Sporting Goods, Stoves, Sewing Machines, Bright Enamel Ware, &c., by F. L. Hormel, L. E. Evans, O. A. Bischof, W. H. Barnicle, John O'Brien, M. J. Manjean and W. H. Kohlke.

HOME PRIDE RANGE COMPANY, Marion, Ind.: Exhibit of Ranges; in charge of O. E. Halderman, vice-president and treasurer, and E. A. Ridgeway, manager of Lincoln branch house. Souvenir, aluminum match safe.

ILLINOIS PURE ALUMINUM COMPANY, Lemont, Ill.: Display of Cooking Utensils; in charge of E. A. Phillips, Nebraska representative.

JOLIET STOVE WORKS, Joliet, Ill.: Sample line of Moore's Stoves and Ranges; in charge of Guy Black.

LAWRENCE BROS., Sterling, Ill.: Display of Barn Door Hangers, Chimney Tops and Hardware specialties; in charge of Charles Barbour.

LENNOX FURNACE COMPANY, Marshalltown, Iowa: Model of Torrid Zone Furnace, exhibited by W. J. Heald, manager, and C. E. Doughty. Indexed memorandum book and contractors' estimate book were presented.

LOUDEN MACHINERY COMPANY, Fairfield, Iowa: Hay Tools, Hangers, &c.; represented by R. B. Louden, Z. H. Chittenden and the Harbinson & Modica Mfg. Company. Souvenir, flag badge.

MALLEABLE IRON RANGE COMPANY, Beaver Dam, Wis.: Display of Ranges; in charge of Silas McClure, secretary, and J. J. Troxell, Nebraska representative. Souvenir, oxidized ash tray.

MARSHALL OIL COMPANY, Marshalltown, Iowa, and Lincoln, Neb.: Exhibit in charge of B. E. Pickering, State manager, and F. E. Fender, head of city sales.

MONARCH MFG. COMPANY, Council Bluffs and Toledo, Ohio: Represented by W. B. Cessna.

MONARCH TYPEWRITER COMPANY, Syracuse, N. Y.: Demonstration in charge of J. S. Morrison and A. H. Workman. Souvenirs, mirrors and erasers.

L. J. MUELLER FURNACE COMPANY, Milwaukee: Mueller Furnace displayed by G. C. Mueller and J. B. Outland.

NEBRASKA SEED COMPANY, Omaha: Line of seed samples shown by Werter De Vaughn.

NORTH BROS. MFG. COMPANY, Philadelphia: Display of Yankee Tools and Ice Cream Freezers. The Yankee Twin Freezer was demonstrated by the manufacture of ice cream, which was served to the visitors. D. L. Rugg was in charge. Souvenir, small ratchet screw driver.

PATTERSON-SARGENT COMPANY, Cleveland, Ohio: Unique display of China-lac by W. W. Walton, assisted by Lillian Majaska, demonstrator.

PAXTON, GALLAGHER & CO., Omaha: Demonstration of Washing Machines made by the One Minute Washer Company, Newton, Iowa, and Acme Washing Machine Company, Columbus, Ohio.

PINKERTON MFG. COMPANY, Lincoln, Neb.: Display of Incubators and Brooders.

PITTSBURGH STEEL COMPANY: Interesting demonstrations of the strength of the weld used in the manufacture of Wire Fencing; in charge of E. Steytler and J. F. Williams. Souvenirs, heavy wire canes.

TOM RAY CUTLERY COMPANY, Kansas City, Mo.: Represented by Mr. Ray. Exhibit of Cutlery Goods in hotel, and demonstration of Lahan Soft Coal Heater at Thirteenth and N streets, in charge of Fred. Wirt.

REMINGTON ARMS COMPANY, Ilion, N. Y., and UNION METALLIC CARTRIDGE COMPANY, Bridgeport, Conn.: Display in charge of M. F. Sharp. Souvenir, a badge made from head of shell.

ROCHESTER STAMPING COMPANY and ROBESON CUTLERY COMPANY, Rochester, N. Y.: Display of Stamped Ware and Cutlery; in charge of R. A. Henderson, Nebraska representative.

W. C. SHINN, Lincoln, Neb., manufacturer of Copper Cable Lightning Rods.

SIMMONS HARDWARE COMPANY, St. Louis: Represented by T. C. Dymond, Nebraska sales manager; T. J. Wachter, manager Sioux City house, and E. F. Jordan, S. J. Garoutte, C. M. Ambrose and J. L. Woodson.

CHARLES SMITH COMPANY, Chicago: Hero Furnaces; represented by Chas. Smith.

VICTOR MFG. COMPANY, Hiawatha, Kan.: Washers and Wringers; demonstrated by E. V. Allen and Mrs. Allen.

VOSS BROS. MFG. COMPANY, Davenport, Iowa: Eclipse automatic high speed and Ocean Wave Washing Machines; displayed by W. A. Voss and A. Clifford. Souvenirs, button and tray.

WAHLE FOUNDRY & MACHINE WORKS, Davenport, Iowa: Display of Cascade, White Swan and Snowball Washing Machines; in charge of George Matern. Souvenirs, White Swan wall pocket and snow white baseball.

WARNER FENCE COMPANY, Ottawa, Kan.: Exhibit of Wire Fences, Gates, &c., by E. F. Russell.

WESTERN GLASS & PAINT COMPANY, Lincoln, Neb.: Represented by T. P. Kinnard, president.

WHITE LILY WASHER COMPANY, Davenport, Iowa: Display of White Lily, Rose and Daisy Washers; in charge of Sam T. White and Richard Pfabe. Souvenir, memorandum book.

WILCOX MFG. COMPANY, Aurora, Ill.: Display of Velox Steel Frame and Ideal Wood Frame Grindstones, Wilcox-Prouty Door Hangers, &c.; in charge of P. W. Brockman. Souvenir, "Simpson" motto card.

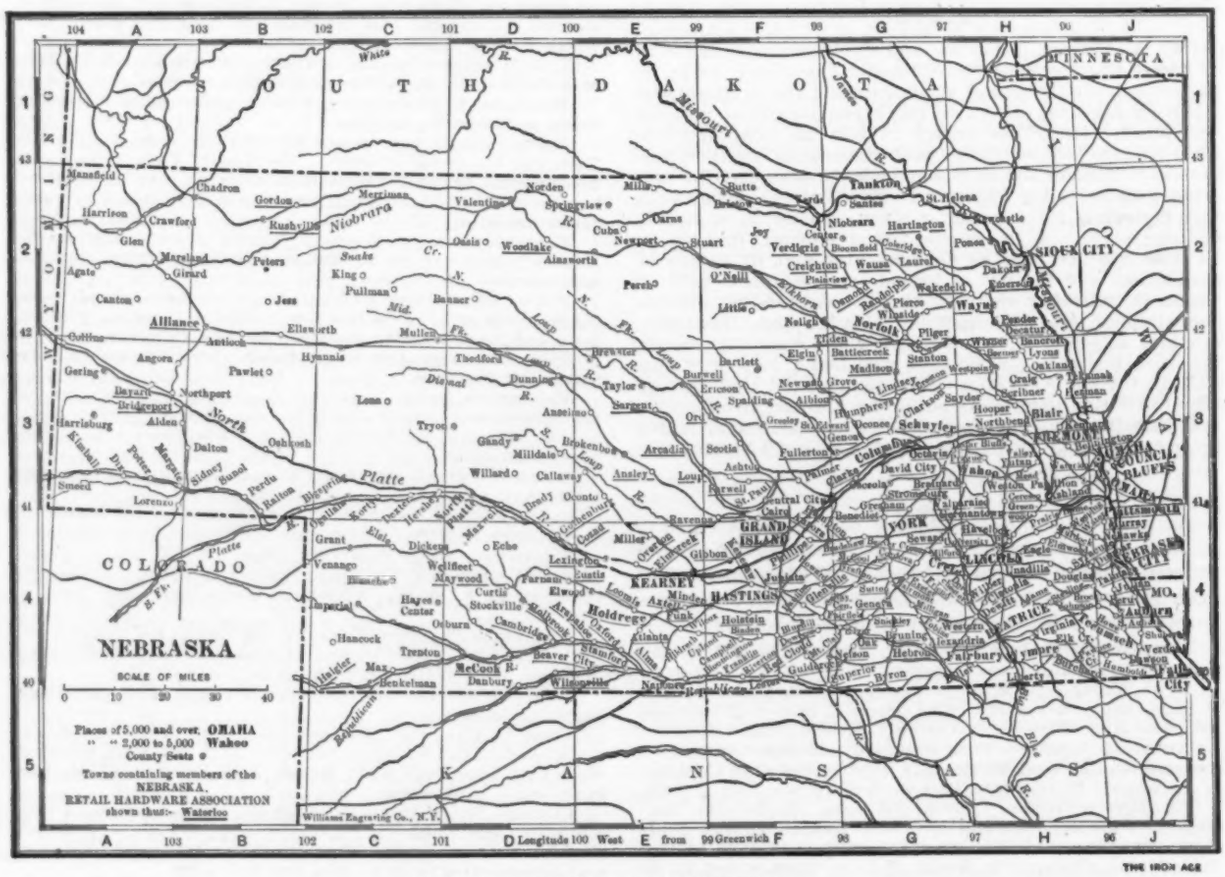
NEBRASKA ASSOCIATION MAP.

The membership of the Nebraska Association is now well beyond the 300 mark, not far from 100 accessions being reported during the recent meeting. The membership probably includes more than 40 per cent. of the eligible Hardwaremen of the State. As will be gathered from the accompanying map, the northwestern, southwestern and north central parts of the State are not yet well represented, while the eastern, both north and south, and southern parts of the State are effectively

covered by the association. A number of towns in the State of one or two thousand inhabitants are not represented at all, and in one town especially of about 6000 population the association, notwithstanding a hard canvass, has not been able to make any headway in the direction of securing members on account of dissension among the merchants themselves. Referring to the map towns of 5000 and over are represented by capitals, as, for instance, OMAHA. Places of 2000 to 5000 are in heavy face lower case type, those under 2000 being in lower case roman.

Members of the Nebraska Retail Hardware Association February 16, 1906.

ADAMS.
Leech & Van Engan.
ALBION.
P. A. Krause.
ALEXANDRIA.
F. W. Hubbard & Co.
J. J. Rousch Company.
ALLIANCE.
C. A. Newberry.
BLOOMFIELD.
Uehling & McCourt.
W. B. Frymire.
BLOOMINGTON.
E. J. Holmes.
Chris Roupp.
BLUE HILL.
Fred. Pelz.
DAVID CITY.
Barns-Havlik Hardware Company.
DEWEESE.
J. F. Souchek.
DEWITT.
Chas. A. Fowler.
DILLER.
J. O. Blosser.
Thos. Nelson.
DORCHESTER.
Thos. Jarratt, Jr.
Meacham Hardware Company.
DUNBAR.
D. Kruse.
EAGLE.
A. L. McDonald.
EDGAR.
Stoddard Hardware Company.
ELGIN.
W. E. Brooks.
W. J. Lehr.
ELK CREEK.
R. E. Bicknell.
ELMWOOD.
L. W. Roettger.
EUSTIS.
F. C. Schroeder.
EXETER.
Leader Hardware & Furnace Co.
GERMANTOWN.
C. Fetterman & Son.
GIBBON.
L. A. Walker.
GORDON.
Jordon Hardware Company.
GRAND ISLAND.
Hehnke & Co.
R. H. McAllister Company.
Lederman Bros.
GREENWOOD.
White Bros.
GRESHAM.
H. M. Husbands.
GUIDE ROCK.
Dwight Jones.
John S. Marsh.
HAIGLER.
J. C. McPherson & Co.
HALLANA.
J. Roche.
HARTINGTON.
Goetz & Hurlbut.
Aug. Lubeley.
C. M. Olsen.
HARVARD.
L. A. Higgins Hardware Company.
Chas. Perry.
HASTINGS.
Binderup Hardware Company.



Hardware Association Map of Nebraska.

ALMA.
Moore & Co.
E. M. Haag.
ARAPAHOE.
J. J. Wagner.
ARCADIA.
C. C. Hawthorne.
ASHLAND.
Clarke Hardware Company.
McCartney Bros.
ATLANTA.
Reed & Hedlund.
AXTELL.
C. L. Carlson Hardware & Implement Company.
Scott & Einsel.
BANCROFT.
F. S. Schwendhelm.
G. C. Teich & Son.
BATTLE CREEK.
C. A. Hedman.
BAYARD.
Burke & Harpole.
BEATRICE.
F. D. Kees.
BEAVER CROSSING.
W. L. Cook.
McKnight & Harriger.
BENEDICT.
P. F. Conant.
BENNETT.
Peter Olson.
BLADEN.
Louis Cutter.
Chas. E. Hicks.
BLAIR.
Arnd Hardware Company.
Thone & Farnberg.
BRADSHAW.
A. Klein.
C. L. Smith Company.
BRAINARD.
Joseph Posvar.
BRIDGEPORT.
Bridgeport Hardware Company.
BROCK.
Bailey & Cathcart.
BURCHARD.
L. Boswell & Son.
BURR.
Brown Bros.
BURWELL.
Johnson Hardware Company.
CAMPBELL.
A. G. Hunt.
R. A. Collier.
CEDAR BLUFFS.
Adam Lockner.
CENTRAL CITY.
Ross, Dye & Cowgill.
CERESCO.
E. G. Dahlstrom.
CLARKS.
Ed. Johnson.
COLERIDGE.
Mitchell & Co.
COWLES.
M. R. Adams.
CREIGHTON.
M. L. Montgomery.
E. H. Warrington.
CRESTON.
Wm. Wenk.
CRETE.
A. E. Small & Co.
W. F. Dickinson.
FARWELL.
A. M. Duster & Co.
FAIRBURY.
Howell Bros.
D. Kavanaugh.
J. Thornton & Son.
FAIRFIELD.
J. T. Witham.
Phillips Hardware Company.
FAIRMONT.
R. G. Hall.
FALLS CITY.
W. H. Cook & Co.
Alex. F. Meyer.
Wirth & Winterbottom.
FRANKLIN.
Cochran Bros.
FREMONT.
N. M. Hansen.
Lee & Miller.
Philsbury, Veazie & Co.
Hollaway & Fett.
FRIEND.
Frank Hacker.
T. W. O'Loughlin.
Scamman, Ahl & Co.
FULLERTON.
J. E. Kriedler.
FUNK.
A. S. Erickson.
GENEVA.
W. L. Spear & Co.
W. S. Nicholas.
Hranac Bros.
GENOA.
Elm & Wright.
Kennedy Bros.
G. E. Isaman & Co.
C. K. Lawson Hardware Company.
J. H. McGrath Hardware Company.
HEBRON.
J. G. Wright.
Young, Knode & Co.
HERMAN.
T. W. Hungate.
HICKMAN.
L. Liersiert.
HILDRETH.
Hanson Bros. & Co.
C. A. Strickler.
HOLBROOK.
Perry & Bee Company.
A. V. Schroeder.
HOLDREGE.
Hanlin & Ekberg.
Max Uhlig Hardware Company.
HOLSTEIN.
M. A. Hargelroad.
HOOPER.
J. H. Heine.
HUBBEL.
J. C. Herwig.
HUMBOLDT.
J. F. Wozab.
Stapak & Atwood.
JANSEN.
Thiessen & Co.
Jno. A. Thiessen.
JOHNSON.
Casey & Son.
JUNIATA.
J. J. Gish.

KEARNEY.
C. F. Bodinson Hardware Company.
C. W. Shanan.
J. C. Wright.
KENESAW.
C. G. Schlegel.
KENNARD.
Lewis E. Ward.
LEIGH.
P. E. Rockford.
LEXINGTON.
Geo. Aubel.
W. H. Wisda.
LITCHFIELD.
C. A. Moore.
LINCOLN.
Rudge & Guenzel Company.
Leon Baker.
F. E. Lahr.
Hall Bros. Company.
H. Veith Company.
E. Hoppe.
H. M. Town.
M. O. Trester.
LINDSAY.
M. J. Widener.
LOOMIS.
W. E. Gamel.
LOUP CITY.
E. S. Hayhurst.
P. O. Reed.
LYONS.
Laase & Allinson.
J. B. Thomas.
M'COOK.
W. T. Coleman.
M'COOL JUNCTION.
M. E. Boren.
MAYWOOD.
Maywood Supply Company.
MADISON.
John Horst.
MEADOW GROVE.
Cash Hardware Company.
MILFORD.
W. C. Klein.
MINDEN.
Haws Hardware & Furniture Company.
Nichol & Pattison.
C. Peterson.
R. S. Blakeman.
MURDOCK.
A. J. Tool.
MURRAY.
L. B. Underwood.
NEBRASKA CITY.
H. G. Markel.
Myer & Co.
NEHAWKA.
H. Wessell.
NELIGH.
B. J. Wright.
NELSON.
Case & McDermott.
NEWMAN GROVE.
Hinman & South.
A. E. Lind & Son.
NORFOLK.
Albert Degner.
John Friday.
NORTH BEND.
C. L. Kelly.
W. M. Orr.
G. A. Gaughen.
OAKLAND.
Fried & Holmquist.
OCTAVIA.
A. F. Eberly.
ODELL.
T. R. Tallon.
OHIOWA.
J. F. Reed.
OMAHA.
Dunning Hardware Company.
J. Hussle Hardware Company.
James Morton & Son.
Milton Rogers & Son.
Johnson Hardware Company.
G. W. King.
Thos. Sinhold.
O'NEILL.
Neil Brennan.
ORD.
Cornell Bros.
L. T. Leggett.
OVERTON.
Ralph Wallace.
PAULINE.
C. F. Glazier & Son.
PRAGUE.
Brotz Bros.
PAWNEE CITY.
Harrington Bros.
PERU.
Dobbs & Weaverling.
PETERSBURG.
Jno. P. Erpelding.
PLAINVIEW.
F. W. Ebinger.
PLATTSMOUTH.
John Bauer.
Ebinger Hardware Company.
PROSSER.
H. F. Moore.
RAVENNA.
A. V. Hlava.
O. L. Miller.
RED CLOUD.
Morhart Bros.
Pope Bros.
REPUBLICAN CITY.
L. P. Fox.
L. L. Johnson.
RUSHVILLE.
F. J. Beck.
ST. EDWARDS.
Knudson & Larson.
SARGENT.
Parks & Perrins.
C. A. Strahle.
SCHUYLER.
A. C. Godenschwager.
SCRIBNER.
F. H. Ranslem.
SEWARD.
J. F. Goehner & Bros.
S. C. Oaks.
Rupp & Dietz.
SHICKLEY.
McPherren Bros.
SHUBERT.
C. A. Lord.
SOUTH AUBURN.
Gilmore, Armstrong Company.
Lynch & Smith.
SOUTH OMAHA.
Peterson & Michaelson.
SPRAGUE.
C. O. Hale.
STANTON.
G. H. Glaser.
STROMSBURG.
Ericson, Edburg & Ericson.
Green & Ericson.
SUPERIOR.
W. P. Long & Son.
SUTTON.
S. Carney.
F. J. Hoerger.
SYRACUSE.
Brandt & Papp.
C. P. Schneider.
Wm. Powell.
TABLE ROCK.
W. P. Smith.
TECUMSEH.
O. J. McDougal.
TEKAMAH.
E. W. Shaffer.
TILDEN.
C. A. Snider.
TOBIAS.
Moore & Adams.
G. M. Tallon.
UEHLING.
Suhr & Heyne.
UNADILLA.
Patterson & Co.
UNIVERSITY PLACE.
H. M. Wineland.
C. R. Smith & Co.
UPLAND.
Hanson Bros.
VALLEY.
L. P. Byars.
VALPARAISO.
W. J. Collier & Co.
VERDIGRE.
Schmidt & Sandoz.
WABASH.
J. A. Wright.
WAHOO.
Lehmkuhl & Wendstrand.
Stratten & Hanson.
WALBACH.
Bissell, Seavey & Bissell.
McIntyre & Son.
WASAU.
Satt & Hanson.
WATERLOO.
J. S. Nesbit.
WAYNE.
Neely & Craven.
WEEPING WATER.
H. E. Mason.
D. M. Johnson.
WESTERN.
Waldorf Bros.
A. D. Seybolt & Co.
WEST POINT.
Holst & Peterson.
G. L. Neiberg.
WILBER.
Fictum & Pesek.
Shimonek & Son.
WILCOX.
Hast & Ziebarth.
WILSONVILLE.
E. W. Parker.
WISNER.
Kinzel Bros.
Gus Wessel & Co.
WINSIDE.
Walter Gaebler.
WOOD LAKE.
Johnson Bros.
YUTAN.
Claus Peters.
HORTON, KAN.
W. M. Winehold.

THE PHILIP GROSS HARDWARE COMPANY, Milwaukee, Wis., has filed amended articles of incorporation increasing its capital stock from $100,000 to $200,000. The company will erect a large addition to its building at 126 Grand avenue to accommodate additional supplies of stock to be added soon.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists catalogues quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM H. E. MCKEE, who succeeds Gaughen & McKee at Gregory, S. D., in the Shelf Hardware, Stove, Tinware, Paint, Sporting Goods, Harness and Saddlery business.

FROM BURDETTE COLLEGE, 18 Boylston street, Boston, Mass. This institution makes a specialty of training men for actual business, and in this connection would value copies of manufacturers' catalogues.

FROM KIRWAN-ROBIRDS SUPPLY COMPANY, Baltimore, Md., which started in business January 1, handling Mine, Contractors', Railway and Steamship Supplies.

FROM HACK-SANNER HARDWARE COMPANY, Shamokin, Pa., whose building was burned to the ground on the night of the 8th inst. The stock inventoried at $70,000 to $75,000, this being covered by but $19,500 insurance. The company quickly made arrangements to resume business in the same block and opened up again on the 10th inst., having a stock of heavy goods in two large warehouses, as well as a branch store at Mt. Carmel.

FROM EATON & CHIPMAN, successors to J. V. Eaton, Danville, Iowa, retail Hardware, Stoves, Tinware, Paints, Oils, Agricultural Implements, Buggies, Harness, &c.

FROM ARTHUR J. BAXTER, who has opened a store in Strawn, Kan., and will carry a stock of Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils, Sporting and Athletic Goods.

FROM T. B. NEWMAN, who has purchased the business of E. N. Wright, Collinsville, Texas. The stock carried includes Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils, Sporting and Athletic Goods.

FROM STORER BROS., who have purchased the Hardware stock of Griffin & Rogers, Yarmouthville, Maine, and will carry Shelf and Heavy Hardware, Stoves, Tinware, Paints and Oils.

FROM MARINE HARDWARE & SUPPLY COMPANY, 561 South Los Angeles street, Los Angeles, Cal., which has been incorporated with a capital stock of $25,000. The company will carry on a wholesale and retail business in Shelf and Heavy Hardware, Stoves, Tinware, Paints, Oils, Gasoline Engines and Supplies, Fish Netting, Seine Twine, Cordage; Yacht, Launch and Motor Boat Fttings; Ship Chandlery, Marine Hardware, Electrical Apparatus, Canvas and Canvas Goods and Wire Rope, &c.

FROM O. S. STAPLEY & Co., Mesa, Ariz., who handle Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils, &c. The firm has recently been burned out and is now in temporary quarters, but expects to be able to handle its usual volume of business within 60 days.

FROM THE LIDE HARDWARE COMPANY, Decatur, Ala., which has opened a retail store, carrying Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils, Sporting and Athletic Goods, &c.

FROM M. C. LUCKY, who has purchased the business of M. C. Messer Hardware Company, Cassville, Mo. The stock includes Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils, Wagons, Buggies, &c.

FROM SHULTZ & MAHONEY, successors to C. D. Shultz, Hornellsville, N. Y., carrying Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils and Gas Supplies.

KELLEY, MAUS & CO.

KELLEY, MAUS & CO., Chicago, Ill., have purchased a vacant tract at Twenty-second street and Ashland avenue, 250 x 700 feet, and will immediately erect two large warehouses and establish a yard for carrying an extensive line of wood stock. The present building, which combines the main office and warehouses, will be retained, and local shipments for the South Side, as well as those outside of the city, will be made from the new warehouses as soon as completed. The present warehouse will attend to the local trade only north of Van Buren street. Each of the new buildings will be 120 x 300 feet. One, which will be one story in hight, will be of steel construction throughout and will be used as a warehouse for iron and steel material, while the other, which will be two stories in hight, will be of brick, mill construction, and will be used for carrying Heavy Hardware. The location of the other building is such that shipments to the various railroad stations can be made by boat, and many of the deliveries about the city can be made in the same way. The contract for the erection of the one-story building has already been awarded to the Moravia Construction Company of Chicago, and it is to be completed within 30 days. The other building, the contract for which has not been let, is to be completed by May 1, and it is probable that the offices of the company outside of the local shipments will be removed to this new location. The very large increase in the company's business in the past few years has made the present quarters entirely inadequate, and owing to the downtown location of the present building at the west end of the Lake Street Bridge further extensions at this place are impracticable, owing to the increasingly high values on centrally located property.

PITTSBURGH HARDWARE & HOME SUPPLY COMPANY.

PITTSBURGH HARDWARE & HOME SUPPLY COMPANY, with headquarters at Pittsburgh, has made application for a charter under the State laws of Connecticut, with a capital of $100,000. The incorporators are: W. H. Cochrane, treasurer of the Bindley Hardware Company, Pittsburgh; Lucius F. Robinson and Albion B. Wilson, of Hartford, Conn. The new concern will take over the entire business interests of the Bartlett Furnace & Range Corporation, 619 Smithfield street, Pittsburgh, which has been practically owned by the Bindley Hardware Company for some time. The business will be removed from this location to the new warehouse occupied by the Bindley Company at Shady Side station, Pittsburgh, on the main line of the Pennsylvania Railroad. The new company will continue the manufacture of the Bartlett furnaces, stoves and ranges and later on may take up the manufacture of small household novelties.

MISCELLANEOUS NOTES.

Diamond Expansion Bolts.

The Diamond Expansion Bolt Company, 9-15 Murray street, New York, is making three new sizes of its Diamond expansion bolt, with diameters of ⅜, ½ and ⅝ inch, fitted with shields which are only 1½ inches long. This form of the expansion bolt is to meet a demand for the attachment of fixtures in reinforced concrete building construction, where floors frequently are not more than 2 inches thick. The Diamond expansion shield is now made in sizes ranging from ⅛ to 2 inches diameter of screw, smaller sizes being used with regular wood screws and the larger diameters with common lag screws.

Premier and Bathroom Scales.

Lowell Scale Company, 605 Middlesex street, Lowell, Mass., has recently put on the market the Premier and Bathroom scales. These scales, as well as the rest of the scales made by the company, are referred to as of the highest grade, accurate and durable.

Victor Steel Tray Wheelbarrow.

The Kilbourne & Jacobs Mfg. Company, Columbus, Ohio, has added to its line the steel tray wheelbarrow shown in the accompanying cut. The tray is stamped from a single sheet of No. 17 gauge steel, the edges of which are turned over a steel rod which passes entirely around it to stiffen and strengthen it. The tray is painted blue with oil paint. The barrow is supplied either with Jacobs' patent wood wheel or Lewis' patent round spoke steel wheel.

Victor Steel Tray Wheelbarrow.

Sidewalk Cleaner.

In the sidewalk cleaner shown herewith the blade and shank are forged from one piece of steel. The ferrule and handle are extra heavy and strong and the ferrule and half the blade are bronze finished. The cleaner is referred to as having the requisite strength and weight to enable the operator to knock off the ice and packed snow with comparative ease. The tool is offered by the American Fork & Hoe Company, Cleveland, Ohio.

Sidewalk Cleaner.

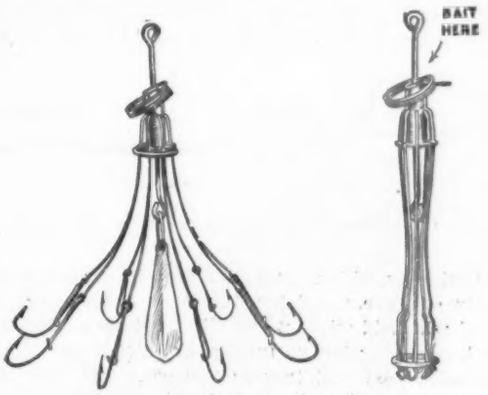
Corkscrew and Spoon Holder.

A. M. Irby, P. O. box 897, Norfolk, Va., is putting on the market the combined corkscrew and spoon holder herewith illustrated. The cut shows how the device may be hung up and how the spoon is held in place. It is about 2½ inches long, and the loop holding the spoon is left open far enough to introduce the small part of the spoon handle. The device is designed to extract corks from medicine bottles and to hold the spoon used in giving medicine doses.

Corkscrew and Spoon Holder.

Smith's Snag Hook.

The snag hook shown in the accompanying cut, open and closed, is offered by John P. Smith & Co., 493-501 State street, New Haven, Conn. A sliding ring at the top of the device is used to close the hook when not in use. The hook has eight arms upon which the fisherman fastens eight fish hooks. This can be done quickly, and



Smith's Snag Hook.

the fish hooks will not come off until released. A sinker is fastened inside the arms to an eye provided for this purpose. The line is then attached in the loop at the top and the bait put on the spiral hook at the point designated in the right hand cut. When a fish nibbles at the bait the fisherman pulls on his line, when the fish, it is remarked, is pretty sure to be caught on one of the hooks. The hook is referred to as being strong, well made and full nickeled.

Dikeman Automatic Chain Drilling Attachment.

The M. W. Robinson Company, 79 Chambers street, New York, is just putting out the Dikeman chain drilling attachment with automatic geared feed, for use in

Dikeman Automatic Chain Drilling Attachment.

ordinary bit brace or breast drill, here illustrated. The tool, which has several original features, is particularly serviceable for drilling holes in steel, cast iron, slate and various metals, with ease and rapidity, having marked advantages for machinists, steam fitters and plumbers, carriage makers, boat builders and numerous classes of metal workers. In operation no body pressure is necessary, owing to the geared uniform automatic graduated feed, and at no point in the revolution of the drill is more power required than at another. Each attachment has 30 inches of strong steel safety chain, ⅜-inch links, for reaching around the material to be drilled. In operation the increase is obtained by means of two gear wheels having respectively 23 and 24 teeth. The attachment is furnished regularly with a chuck for holding twist drills with ½-inch round straight shanks, and where bit stock drills are to be used a special interchangeable collet fitting into the chuck can be furnished, thus making it available for either style of drill. The collets are in two parts, the inner ends sliding diagonally on each other, the outer one having a slit lengthwise so that as the hexagon nut is turned the first section compresses and closes on the drill shank and with the second section grips it securely. The attachment, without drill, is 9 inches long over all, chain holder 4⅛ inches long and has ⅞-inch body, 20 threads to the inch. The steel parts are polished and nickeled and the iron portions, as indicated in the cut, japan finished. The steel rod with japanned steel spiral spring fits into an opening for that purpose in a thin steel plate next to the casing containing the gears, which have respectively 23 and 24 teeth, and by means of which the increase as drill progresses is obtained the rod as now made having a ½-inch knurled brass head. The attachments, without drills, are nicely put up singly in a dovetailed slide cover wooden box, the whole tool being strongly made and handsomely finished.

Ideal Automatic Door Catch.

The Ideal automatic door catch which we illustrate is being placed on the market by Schofield & Co., Free-

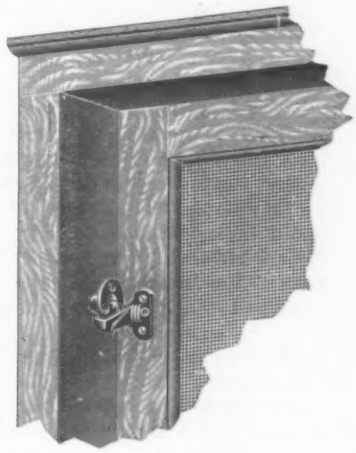


Fig. 1.—Ideal Automatic Door Catch.

port, Ill. The wheel, which is bolted to the casing, as shown in the cut, revolves on the bolt which holds it when it comes in contact with the latch, thus preventing any friction. A greater or less degree of tension is secured in the action of the catch by adjustment of the

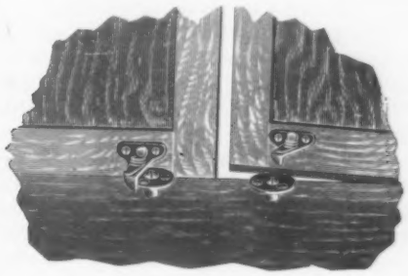
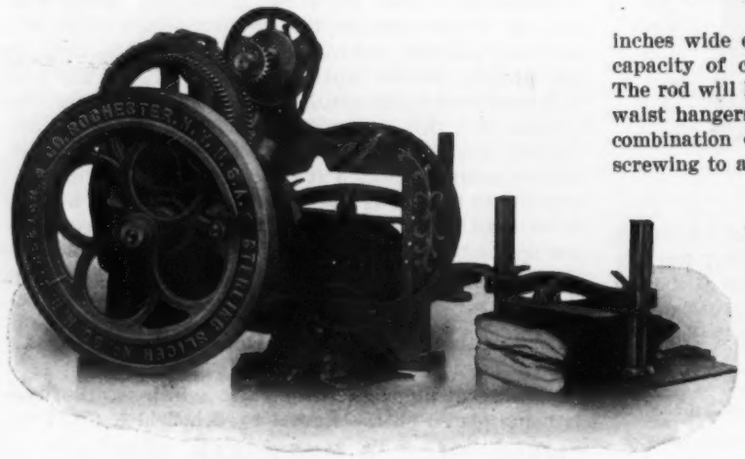


Fig. 2.—Ideal Catch Applied to Cupboard Doors.

latch or the wheel in their relation to each other. The spring of the latch is not adjustable. Fig. No. 2 shows the application of the latch to cupboard doors.

Sterling Food Slicer No. 90.

N. R. Streeter & Co., Rochester, N. Y., for whom W. H. Jacobus, 155 Chambers street, New York, is sales representative in New York and adjacent territory, have recently added to their line of food slicers the Sterling slicer No. 90, here illustrated. The salient features of this economic and labor saving device are the ease and rapidity with which large quantities of meats, bread, and other food stuffs can be uniformly cut in any one of 17 thicknesses up to ⅜ inch in a short time. This is accomplished by means of a revolving circular tool steel knife 11 inches in diameter, having a long, beveled, thin cutting edge, which can with little effort be revolved at great speed, the knife always turning in one direction. The power is transmitted through the necessary gearing by turning the heavy balance wheel, 16 inches in diameter

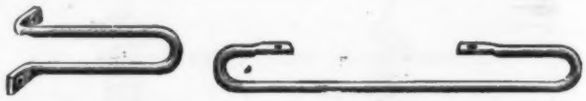


Sterling Food Slicer No. 90.

and 1⅜-inch face, which furnishes abundant power to keep the knife in quick motion, regardless of how much resistance is encountered in cutting through the material, the weight of the balance wheel being properly proportioned to the work. The knife is on a swinging arm and moves across the face of the product to be cut, the cutting being accomplished in large measure below the middle of the knife. This movement creates a tendency to draw the material toward the knife, rather than to push it away, so that the last end of the operation is a clean cut. The manufacturers assert that a piece of the finest tissue paper dropped on the movable frame in front of the knife will be sheared through without moving the paper. In operation whole ham, corned beef, tongue, the largest sides of bacon, dried beef, bread or kindred food stuff is clamped in the traveling frame, as seen in the detail cut at the right of machine, which has a clear opening of 7½ x 10½ inches, the frame and contents moving toward the knife automatically as the blade revolves. There are 17 adjustments, which are made instantaneously by putting a steel pin fastened to a small chain in any one of the 17 holes, the resulting slice being from the thinnest wafer to ⅜ inch thick, it being the intention to also arrange for even a thicker slice for those who require it. As the revolving circular blade moves across the 10½-inch opening its cutting edge travels 12 feet, the knife after each cut swinging back to point of beginning for a new cut. There is a long screw and ratchet, not visible in the illustration, which automatically advances the food holding platform, the cut slices falling on a white enameled meat platter, 9½ x 13 inches, supplied with the machine. A scale can be so placed that as the slices fall on the platter the weight is indicated where weight is required. For automatically grinding the rotary cutter there is a small piece of India sharpening stone, seen just at the right of endless link chain, which as occasion requires can be swung over against the knife for sharpening the blade, the proper pressure being regulated by a spring; but a few turns being necessary to bring the blade to an edge again. The machine is set up for use as shipped, necessitating only the putting on of the balance wheel. After food is clamped in position the operator has only to turn the wheel until supply is exhausted. The slicer is packed for shipment in one crate and one box, weighing complete 200 pounds.

Pullman Garment Hanger Rods and Loops.

Illustrated herewith are garment hanger rods and loops, offered by Pullman Mfg. Company, Rochester, N. Y. The hanger rod is 15 inches long and fits any shelf 12



Hanger Loop No. 18. Hanger Rod No. 15.

Fig. 1.—Pullman Garment Hanger Rods and Loops.

inches wide or wider. It is referred to as doubling the capacity of closets and keeping them orderly and neat. The rod will hold without crowding, it is said, six coat or waist hangers, or twelve trouser or skirt hangers, or six combination coat and trouser hangers. The loop is for screwing to a wall or door. It is 9 inches long and holds

Fig. 2.—Garment Hanger Rod and Loop Display Box.

one-half the above quantity of hangers. The rods and loops are made of cold Bessemer steel, heavily copper plated, finished with an extra heavy coat of nickel. The goods are packed two dozen in a green leatherette display box as shown in Fig. 2.

Acme Drop Forged Launch Wheel.

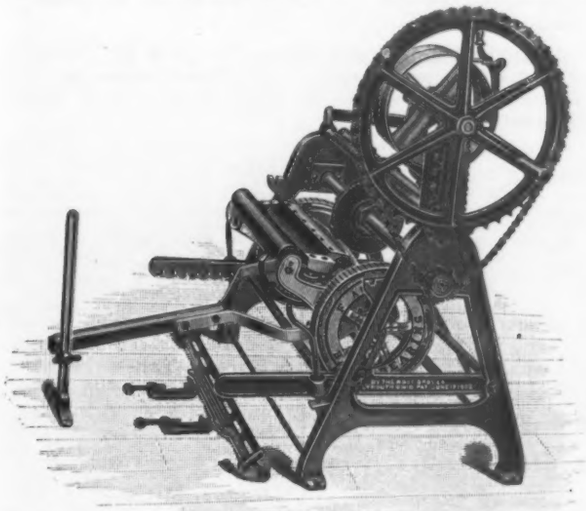
The accompanying illustration shows a patented motor boat or launch wheel manufactured by the Marine Hardware & Equipment Company, South Portland, Maine. The wheel is made from a fine quality of forging steel, drop

Acme Drop Forged Launch Wheel.

forged throughout. The handles are of wood, neatly finished and easily removed to be replaced in the event of their being broken or cracked. Necessary parts for this purpose can be quickly furnished. The wheel is well galvanized and is packed for the trade knocked down, neatly and securely wrapped to keep the goods fresh and clean.

The Ideal Lawn Mower Grinder.

The Root Brothers Company, Plymouth, Ohio, has made improvements in its lawn mower grinder, as shown in the accompanying cut. The company builds a hand grinder similar to the one shown, except that it is not equipped with power attachment with tight and loose pulleys. The improvements in the 1906 machine are as follows: Carborundum wheels are used instead of common emery wheels, the former costing twice as much as the latter; a separate shaft or screw rod is used on

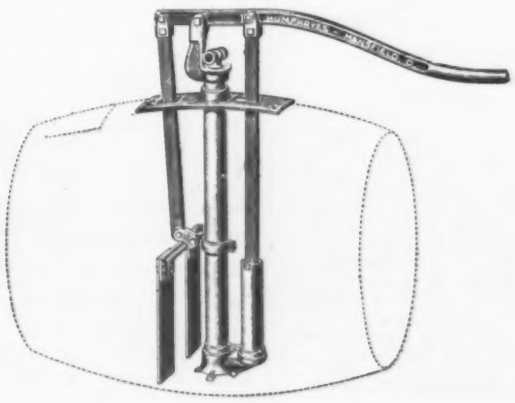


The Ideal Lawn Mower Grinder.

which the carborundum wheel slides, making it much stronger and stiffer, and the machine is much heavier and better in every way, we are advised. The grinder is 27½ inches wide between the frame and will take in mowers with 20-inch blades. The main driving shaft, which carries the carborundum wheel, is 1⅛ inches in diameter. The wheel is 6 inches in diameter, with ½-inch face. The power pulleys are 6 inches in diameter, 1¾-inch face, for 1½-inch belt. The weight of the hand grinder is about 85 pounds and that of the power grinder 100 pounds. Those already having the company's hand grinder can order the power attachment at any time.

The Protector Spray Pump.

The Humphryes Mfg. Company, Mansfield, Ohio, is offering the spray pump shown herewith, equipped with curved plate for barrel or with flat plate, as desired. The pump is made from seamless cold drawn brass tubing and the best quality of cast brass. The valves are solid brass of the poppet type, automatic grinding and cleaning. They are very accessible, as a tough stick inserted between the foot lugs will unscrew the base, laying bare the valves. The plunger is of hard wood and is fitted with indestructible packing of asbestos impregnated with graphite, which, it is stated, will withstand any solution. The packing is very easily tightened by screwing up the



The Protector Spray Pump.

follower. Brass screen wire is used to strain the solutions, to keep the pump from choking up and the nozzle from clogging. The agitator consists of two hardwood blades and moves before the suction inlet in long sweeps, keeping the entire mixture in constant agitation. It is pointed out that the blades are not susceptible to the corroding influences of spraying solutions and that they will not get jammed. The agitator may be operated indedently before spraying by removing one pin in the lever. The handle is reversible, so that the operator may work conveniently when standing on the top of a tank or above it, as is sometimes necessary. The pump is made in two sizes only, without any difference in construction, except as to the capacity of cylinder and air chamber.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

	℔ gal.
Linseed, City, raw	42 @43
Linseed, City, Boiled	44 @46
Linseed, State and West'n, raw	40 @41
Linseed, raw Calcutta seed	@65
Lard, Extra Prime, Winter	66 @67
Lard, Extra No. 1	48 @49
Lard, No. 1	38 @40
Cotton-seed, Crude, f.o.b. mills	24 @25½
Cotton-seed, Summer Yellow, Prime	31 @31½
Cotton-seed, Summer Yellow, off grades	@..
Sperm, Crude	48 @50
Sperm, Natural Spring	@..
Sperm, Bleached Spring	@..
Sperm, Natural Winter	62 @64
Sperm, Bleached Winter	59 @61
Tallow, Prime	51 @53
Whale, Crude	@..
Whale, Natural Winter	42 @44
Whale, Bleached Winter	44 @46
Menhaden, Brown, Strained	26 @29
Menhaden, Light, Strained	27 @30
Menhaden, Bleached, Winter	32 @33
Menhaden, Ex-Bld., Winter	34 @35
Menhaden, Southern	@..
Cocoanut, Ceylon ℔ lb	6¼@ 6¾
Cocoanut, Cochin ℔ lb	7⅜@ 7¾
Cod, Domestic, Prime	32 @35
Cod, Newfoundland	35 @38
Red, Elaine	32 @34
Red, Saponified ℔ lb	4½@ 4⅞
Olive, Italian, bbls	58 @60
Neatsfoot, prime	48 @49
Palm, Logos ℔ lb	6¼@ 6¾

Mineral Oils—

	℔ gal.
Black, 29 gravity, 25@30 cold test	10½@11¼
Black, 29 gravity, 15 cold test	11½@12½
Black, Summer	10½@11⅛
Cylinder, light filtered	18 @19
Cylinder, dark filtered	16 @17
Paraffine, 903-907 gravity	13¼@14
Paraffine, 903 gravity	12½@13
Paraffine, 883 gravity	10¼@10⅝
Paraffine, Red	12½@14

In small lots ½¢ advance.

Miscellaneous—

Barytes:	
White, Foreign ℔ ton	$17.50@19.00
Amer. floated ℔ ton	17.00@19.00
Off color, No. 2 ℔ ton	13.50@15.00
Chalk, in bulk ℔ ton	3,50@ 3,75
Chalk, in bbls. ℔ 100 lb	.@ .40
China Clay, English ℔ ton	11.00@17.00
Cobalt, Oxide ℔ 100 lb	2.50@ 2.60
Whiting, Common, ℔ 100 lb	.43@ .48
Whiting, Gilders ℔ 100 lb	.50@ .55
Whiting, Ex. Gilders ℔ 100 lb	.55@ .60

Putty, Commercial—℔ 100 lb

In bladders	$1.70 @1.85
In bbls. or tubs	1.20 @1.40
In 1 lb to 5 lb cans	2.65 @2.95
In 12½ to 50 lb cans	1.50 @1.90

Spirits Turpentine—℔ gal.

In Oil bbls	71½@72
In machine bbls	72 @72½

Glue—

	℔ lb
Cabinet	11 @15
Common Bone	7 @ 9
Extra White	18 @24
Foot Stock, White	11 @14
Foot Stock, Brown	8 @11
German Hide	12 @18
French	10 @40
Irish	13 @16
Low Grade	9 @12
Medium White	18 @24

Gum Shellac—

	℔ lb
Bleached Commercial	@40
Bone Dried	@50
Button	42 @45
Diamond I	@55
Fine Orange	46 @50
A. C. Garnet	43 @..
D. C.	60 @..
Octagon B	@52
T. N.	45 @46
V. S. O.	@55

Colors in Oil—

	℔ lb
Black, Lampblack	12 @14
Blue, Chinese	36 @46
Blue, Prussian	32 @36
Blue, Ultramarine	13 @16
Brown, Vandyke	11 @14
Green, Chrome	12 @16
Green, Paris	@24
Sienna, Raw	12 @15
Sienna, Burnt	12 @15
Umber, Raw	11 @14
Umber, Burnt	11 @14

White Lead, Zinc, &c.—

	℔ lb
Lead, English white, in Oil	9½@ 9¾
Lead, American white, in Oil:	
Lots of 500 lb or over	@ 7¼
Lots less than 500 lb	@ 7¾
In Barrels	@ 6¾
Lead, White, in oil, 25 lb tin pails, add to keg price	@ ⅛
Lead, White, in oil, 12½ lb tin pails, add to keg price	@ 1
Lead, White, in oil, 1 to 5 lb assorted tins, add to keg price	@ 1½

Lead, American. Terms: For lots 12 tons and over ¼¢ rebate; and 2% for cash if paid in 15 days from date of invoice; for lots of 500 lbs. and over 2% for cash if paid in 15 days from date of invoice, for lots of less than 500 lbs. net.

	℔ lb
Lead, White, Dry, in bbls.	@ 6¾
Zinc, American, dry	4¾@ 5
Zinc, French:	
Paris, Red Seal, dry	9½
Paris, Green Seal, dry	10¾
Antwerp, Red Seal, dry	8¾
Antwerp, Green Seal, dry	10

Zinc, V. M. French, in Poppy Oil:
Green Seal:
Lots of 1 ton and over 12⅞@13⅜
Lots of less than 1 ton 13⅛@13⅝
Zinc, V. M. French, in Poppy Oil:
Red Seal:
Lots of 1 ton and over 11⅝@12¼
Lots of less than 1 ton 11⅞@12⅜
Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or mixed grades, 1%; 25 bbls., 2%; 50 bbls., 4%.

Dry Colors—

	℔ lb
Black, Carbon	5 @10
Black, Drop, American	4 @ 6
Black, Drop, English	5 @15
Black, Ivory	16 @20
Lamp, Com	4½@ 6
Blue, Celestial	4 @ 6
Blue, Chinese	29 @32
Blue, Prussian	27 @30
Blue, Ultramarine	4½@15
Brown, Spanish	½@ 1
Carmine, No. 40	$3.50@3.60
Green, Chrome, ordinary	3½@ 6
Green, Chrome, pure	17 @25
Lead, Red, bbls., ½ bbls and kegs:	
Lots 500 lb or over	@ 7¼
Lots less than 500 lb	@ 7¾
Litharge, American, bbls	@ 7¼
Ocher, American ℔ ton	$8.50@16.00
Ocher, American Golden	2½@ 3½
Ocher, French	1¾@ 2½
Ocher, Foreign Golden	3 @ 4
Orange Mineral, English	10 @12
Orange Mineral, French	10¾@12¼
Orange, Mineral, German	8½@10
Orange, Mineral, American	8½@ 8¾
Red, Indian, English	4½@ 8½
Red, Indian, American	3 @ 3¾
Red, Turkey, English	4 @10
Red, Tuscan, English	7 @10
Red, Venetian, Amer. ℔ 100 lb	$0.50@1.25
Red Venetian, English ℔ 100 lb	$1.15@1.75
Sienna, Italian, Burnt and Powdered	3 @ 9½
Sienna, Ital., Raw, Powd	3 @ 6½
Sienna, American, Raw	1½@ 2
Sienna, American, Burnt and Powdered	1½@ 2
Talc, French ℔ ton	$15.00@30.00
Talc, American ℔ ton	15.00@25.00
Terra Alba, French ℔ 100 lb	@1.00
Terra Alba, English ℔ 100 lb	@1.00
Terra Alba, American, ℔ 100 lb, No. 1	70 @80
Terra Alba, American, ℔ 100 lb, No. 2	60 @65
Umber, Turkey, Bnt. & Pow	2¼@ 3½
Umber, Turkey, Raw & Pow	2½@ 3½
Umber, Burnt, Amer	1½@ 2
Umber, Raw, Amer	1½@ 2
Yellow Chrome	12 @14
Vermilion, American Lead	10 @25
Vermilion, Quicksilver, bulk	@65
Vermilion, Quicksilver, bags	@68
Vermilion, English, Import	75 @80
Vermilion, Chinese	$0.90@1.00

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

Range of Prices.—A range of prices is indicated by means of the symbol @. Thus 33⅓ @ 33⅓ & 10% signifies that the price of the goods in question ranges from 33⅓ per cent. discount to 33⅓ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1905, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—
Domestic, ℔ doz. $3.00.....33⅓%
North's 10%
Zimmerman's—See Fasteners, Blind.

Window Stop—
Ives' Patent.....35%
Taplin's Perfection.....35%

Ammunition—
See *Caps, Cartridges, Shells, &c.*

Anvils—American—
Eagle Anvils.....℔ lb 6¾@7 ¢
Hay-Budden, Wrought.....9@9¼ ¢
Horseshoe brand, Wrought.....9@9¼ ¢
Trenton .....℔ lb 9@9¼ ¢

Imported—
Peter Wright & Sons.....℔ lb 10¼ ¢

Anvil, Vise and Drill—
Millers Falls Co., $18.00.....15&10%

Apple Parers—
See *Parers, Apple, &c.*

Aprons, Blacksmiths'—
Livingston Nail Co.....33⅓%

Augers and Bits—
Com. Double Spur.....75@75&5%
Jennings' Pats., reg. finish.....50&10@60%
Black Lip or Blued.....60&10%
Boring Mach. Augers.....70&10%
Car Bits, 12-in. twist.....50&10%
Ford's Auger and Car Bits.....40&5%
Forstner Pat. Auger Bits.....25%
C. E. Jennings & Co.:
No. 10 ext. lip, R. Jennings' list..25%
No. 30, R. Jennings' list.....40&7½%
Russell Jennings'.....25&10&2½%
L'Hommedieu Car Bits.....15%
Mayhew's Countersink Bits.....45%
Millers Falls.....50&10&7½%
Ohio Tool Co.'s Bailey Auger and Car Bits.....40&10%
Pugh's Black.....20%
Pugh's Jennings' Pattern.....35%
Snell's Auger Bits.....60%
Snell's Bell Hangers' Bits.....60%
Snell's Car Bits, 12-in. twist....60&10%
Wright's Jennings' Bits.....50%

Bit Stock Drills—
See *Drills, Twist.*

Expansive Bits—
Clark's small, $18; large, $26....50&10%
Clark's Pattern, No. 1, ℔ doz. $26; No. 2, $18.....65%
Ford's, Clark's Pattern.....60&5%
C. E. Jennings & Co., Steer's Pat..25%
Swan's 60%

Gimlet Bits—
Per gro.
Common Dble. Cut....$3.00@3.25
German Pattern, Nos. 1 to 10, $4.60; 11 to 13, $5.75

Hollow Augers—
Bonney Pat., per doz..$5.50@6.00
Ames .....25&10%
Universal 20%
Wood's Universal.....25%

Ship Augers and Bits—
Ship Augers.....45&5@60%
Ford's .....33⅓@5%
C. E. Jennings & Co.:
L'Hommedieu's 15%
Watrous' .....35&5%
Ohio Tool Co.'s.....40%
Snell's 40%

Awl Hafts—
See *Handles, Mechanics' Tool.*

Awls—
Brad Awls:
Handled .....gro. $2.75@3.00
Unhdled, Shldered..gro.63@66¢
Unhandled, Patent..gro.66@70¢
Peg Awls:
Unhandled, Patent..gro. 81@84¢
Unhdled, Shldered..gro. 65@70¢
Scratch Awls:
Handled, Com...gro. $3.50@4.00
Handled, Socket..gro.$11.50@12.00
Hurwood 40%

Awl and Tool Sets—
See *Sets, Awl and Tool.*

Axes—
Single Bit, base weights:
First Quality.....$6.75
Second Quality.....$6.25
Double Bit, base weights:
First Quality.....$9.00
Second Quality.....$8.50

Axle Grease—
See *Grease, Axle*

Axles—
Iron or Steel
Concord, Loose Collar...4¼@4¾¢
Concord, Solid Collar...4¾@5¼¢
No. 1 Common, Loose...3¼@3½¢
No. 1½ Com., New Style3¾@4¼¢
No. 2 Solid Collar.....4@4½¢
Half Patent:
Nos. 7, 8, 11 and 12....75@75&5%
Nos. 13 to 14.....70&10@75&5%
Nos. 15 to 18...75&10@75&10&5%
Nos. 19 to 22...75&10@75&10&5%

Boxes, Axle—
Common and Concord, not turned lb..4½@5¢
Common and Concord, turned. lb., 5½@6¢
Half Patent.....lb. 8½@9¢

Bait—
Fishing—
Hendryx:
A Bait.....20%
B Bait.....25%
Competitor Bait.....20&5%

Balances—
Sash—
Caldwell new list.....50%
Pullman .....50&10@60%

Spring—
Spring Balances.....50&10@60%
Chatillon's:
Light Spg. Balances.....40&10%
Straight Balances.....40%
Circular Balances.....50%
Large Dial.....30%

Barb Wire—
See *Wire, Barb.*

Bars—
Crow—
Steel Crowbars, 10 to 40 lb.... per lb., 3@3¼¢

Towel
No. 10 Ideal, Nickel Plate..℔ gro. $8.50

Beams, Scale—
Scale Beams.....40&10@50%
Chattillon's No. 1.....30%
Chattillon's No. 2.....40%

Beaters, Carpet—
Holt-Lyon Co.:
No. 12 Wire Coppered ℔ doz. $0.85; Tinned $1.00
No. 11 Wire Coppered ℔ doz. $1.10; Tinned $1.20
No. 10 Wire Galvanized..℔ doz. $1.75
Western W. G. Co.:
No. 1 Electric.....℔ gro. $7.80
No. 2 Buffalo.....℔ gro. $9.00
No. 3 Perfection Dust.....℔ gro. $8.00

Egg-
Holt-Lyon Co.:
Holt, No. A, Japanned....℔ doz. $1.20
Holt, No. 1, Tinned.....℔ doz. $1.50
Holt, No. B, Japanned....℔ doz. $2.00
Holt, No. 2, Tinned.....℔ doz. $2.25
Lyon, No. 2, Japanned....℔ doz. $1.25
Lyon, No. 3, Japanned....℔ doz. $1.50
Taplin Mfg. Co.: ℔ gro.
No. 60 Improved Dover.....$6.00
No. 75 Improved Dover.....$6.50
No. 100 Improved Dover.....$7.00
No. 102 Improved Dover, Tin'd..$8.50
No. 150 Improved Dover, Hotel..$15.00
No. 152 Imp'd Dover, Hotel, T'd.$17.00
No. 200 Imp'd Dover Tumbler....$8.50
No. 202 Imp'd Dover Tumbler, T'd.$9.50
No. 300 Imp'd Dover Mammoth, ℔ doz. $25.00
Western, W. G. Co., Buffalo.....$7.00
Wonder (R, M, Co.)..℔ gro. net, $6.00

Bellows—
Blacksmith, Standard List.. 60&10@70&10%

Hand—
Molders—
Net Prices.

Inch..	*6*	*7*	*8*	*9*	*10*
Doz...	*$4.75*	*5.70*	*6.65*	*7.60*	*8.85*

Inch..	*9*	*10*	*11*	*12*	*14*
Doz...	*$8.00*	*9.00*	*10.50*	*12.50*	*14.50*

Bells—
Cow—
Ordinary goods...75&5@75&10&5%
High grade.....70&10@70&10&5%
Jersey .....75&10%
Texas Star.....50%

Door—
Abbe's Gong.....45%
Burton Gong.....50%
Home, R. & E. Mfg. Co.'s.....55&10%
Lever and Pull, Sargent's..60&10&10%
Trip Gong.....50&10@50&10&5%
Yankee Gong.....55%

Hand—
Hand Bells, Polished, Brass.60&10%
White Metal.....60%
Nickel Plated.....50&10&60%
Swiss .....60@60&7½%
Cone's Globe Hand Bells.....33⅓@35%
Silver Chime.....33⅓@35%

Miscellaneous—
Farm Bells.....lb. 2¼ ¢
Steel Alloy Church and School 50&10@60%
American Tube & Stamping Co. Gongs 75%
Table Call Bells.....50@50&10%

Belting—
Leather—
Extra Heavy, Short Lap..60&5%
Regular Short Lap....60&10&5%
Standard 10%
Light Standard.....70&5%
Cut Leather Lacing.....50%
Leather Lacing Sides, per sq. ft. 25¢

Rubber—
Agricultural (Low Grade).... 75@75&5%
Common Standard....70@70&10%
Standard .....60&5@60&10%
Extra .....60@60&5%
High Grade.....50&5@50&10%

Bench Stops—
See *Stops, Bench*

Benders and Upsetters, Tire—
Detroit Perfected Tire Bender.....40%
Detroit Stoddard's Lightning Tire Upsetters, No. 1, $1.25; No. 2, $7.25; No. 3, $10.50; No. 4, $16.25; No. 5, $20.50.
Green River Tire Benders and Upsetters 20%

Bicycle Goods—
John S. Leng's Son's 1902 list:
Chain 50%
Parts 50%
Spokes 50%
Tubes 60%

Bits—
Auger, Gimlet, Bit Stock Drills, &c.—See *Augers and Bits.*

Blocks—
Tackle—
Common Wooden.....70&10@75%
Hartz St. Tackle Blocks.....50@50&5%
B. & L. B. Co.:
Boston Wood Snatch, 50%; Eclipse Steel, 75%; Hollow Steel, 50&10%; Star Wire Rope, 50%; Tarbox Metal Snatch, 50%; Tarbox New Style Steel, 50&10%; Wire Rope Snatch, 50%.
Lane's Patent Automatic Lock and Junior 30%
Stowell's Novelty, Mal. Iron....50&10%
Stowell's Self Loading.....60%
See also Machines, Hoisting.

Boards, Stove—
Zinc, Crystal, &c...30&10@40&10%

Boards, Wash—
See *Washboards.*

Bobs, Plumb—
Keuffel & Esser Co.....33⅓%

Bolts—
Carriage, Machine, &c.—
Common Carriage (cut thread): ⅜ x 6 and smaller.....75@—%
Larger and Longer..65&5@—%
Phila. Eagle $3.00 list May 21, '99 80%
Bolt Ends, list Feb. 14, '95.... 65&10@—%
Machine, ⅜ x 4 and smaller 75@—%
Machine, larger and longer.. 65&5@—%

Door and Shutter—
Cast Iron Barrel, Japanned, Round Brass Knob:

Inch.....	*3*	*4*	*5*	*6*	*8*
Per doz..	*$0.30*	*.35*	*.45*	*.60*	*.80*

Cast Iron Spring Foot, Jap'd:

Inch.....	*6*	*8*	*10*
Per doz.....	*$1.20*	*1.50*	*2.25*

Cast Iron Chain, Flat, Japanned:

Inch.....	*6*	*8*	*10*
Per doz.....	*$1.00*	*1.40*	*1.65*

Cast Iron Flat Shutter, Jap'd., Brass Knobs:

Inch.....	*6*	*8*	*10*
Per doz.....	*$0.75*	*.95*	*1.25*

Wrt Barrel Japd.....80@80&10%
Wrt " Bronzed....50@50&10%
Wrt. Spring...70&10@70&10&10%
Wrt. Shutter.....50&5@50&10&5%
Wrt. Square Neck.....75@75&10%
Wrt Square 66⅔&10@66⅔&10&10%
Ives' Patent Door.....60%

Plow and Stove—
Plow .....65&10&10@70%
Stove .....87½&10@—

Tire—
Norway Iron.....80%
Norway Iron.....80%
American Screw Company:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84....82½%
Bay State, list Dec. 28, '99.....80%
Franklin Moore Co.:
Norway Phila., list Oct. 16, '84...80%
Eagle Phila., list Oct. 16, '84....82½%
Eclipse, list Dec. 28, '99.....80%
Mount Carmel Bolt Co.:
Norway Phila. list Oct. 16, '84....80%
Eagle Phila., list Oct. 16, '84....82½%
Mount Carmel, list Dec. 28, '99...80%
Russell, Burdsall & Ward Bolt & Nut Co.:
Empire, list Dec. 28, '99.....80%
Norway Phila., list Oct., '84.....80%
Upson Nut Co.:
Tire Bolts.....72½%

Borers, Tap—
Borers Tap, Ring, with Handle:

Inch.....	*1¼*	*1½*	*1¾*	*2*
Per doz...	*$4.80*	*5.60*	*6.40*	*8.00*
Inch	*2¼*		*2½*	
Per doz.....	*$6.65*		*11.50*	

Enterprise Mfg. Co., No. 1, $1.25; No. 2, $1.65; No. 3, $2.50 each.....25%

Boxes, Mitre—
C. E. Jennings & Co.....30%
Langdon .....15&10%
Perfection 40%
Seavey 33⅓%
Stanley R. & L. Co.:
Nos. 240 to 460.....30%
Nos. 50 and 60.....35%

Braces—
Common Ball, American. $1.25@1.30
Barber's .....50&10&10@60&10%
Fray's Genuine Spofford's.....60%
Fray's No. 70 to 120, 81 to 123, 207 to 414 .....60%
C. E. Jennings & Co.....50&5%
Mayhew's Ratchet.....60%
Mayhew's Quick Action Hay Pat...50%
Millers Falls Drill Braces.....25&10%
P., S. & W. Co., Peck's Pat.60@60&5%
Stanley R. & L. Co.:
Stanley 35%
Victor 45%

Brackets—
Wrought Steel...80&10@80&10&5%
Griffin's Pressed Steel.....80@80&10%
Griffin's Folding Brackets.....70&10%
Stowell's Cast Shelf.....75%
Stowell's Sink.....50%
Western, W. G. Co., Wire.....60&10%

Bright Wire Goods—
See *Wire and Wire Goods.*

Broilers—
Kilbourne Mfg. Co.....75&20%
Western, W. G. Co.....80%
Wire Goods Co.....70@75&10%

Buckets, Galvanized—
Price per dozen.

	Quart.....	*12*	*14*
Water, Regular...	*1.40*	*1.70*	*1.90*
Water, Heavy....	*3.40*	*3.70*	*3.80*
Fire, Rd. Bottom..	*2.30*	*2.55*	*2.95*
Well	*2.55*	*2.87*	*3.15*

Bucks, Saw—
Hoosier.....℔ gro. $36.00

Bull Rings—
See *Rings, Bull*

Butts—
Brass—
Wrought, list, Sept., '96..15@—%
Cast Brass, Tiebout's.....50%

Cast Iron—
Fast Joint, Broad....40&10@50%
Fast Joint, Narrow....40&10@50%
Loose Joint.....70&10@75%
Loose Pin.....70&10@75%
Mayer's Hinges.....70@70&5%
Parliament Butts.....70@70&5%

Wrought Steel—
Table and Back Flaps...75%
Narrow and Broad.....75%
Inside Blind.....75%
Loose Pin.....75%
Loose Pin, Jap'd.....70&10%
Loose Pin, Ball and Steeple Tip 85%
Japanned Ball Tip Butts.. 70&10%
Bronzed, Wrt., Nar. and Inside Blind Butts....55&10%

Ex. 10&10&10@10&10&10&5%

Cages, Bird—
Hendryx, Brass:
3000, 5000, 1100 series.....5%
1200 series.....33⅓%
200, 300, 600 and 900 series.....40&10%
Hendryx Bronze:
700, 800 series.....40&10%
Hendryx Enameled.....40&10%

Calipers—
See *Compasses.*

Calks, Toe and Heel—
Blunt, 1 prong.....per lb. 4¼@4¾¢
Sharp, 1 prong...per lb., 4¼@4¾¢
Burke's Blunt.....4@4¼¢
Burke's Sharp.....4½@4¾¢

Gautier, Blunt....4@4¼¢
Gautier, Sharp....4½@4¾¢
Perkins', Blunt Toe....⅌ lb 3.65¢
Perkins', Sharp Toe....⅌ lb 4.15¢

Can Openers—
See *Openers, Can.*

Cans, Milk—

	5	8	10 gal.
Illinois Pattern	$1.35	1.85	2.05 each.
New York Pattern	1.50	2.20	2.45 each.
Baltimore Pattern	1.50	2.20	2.45 each.
Dubuque	1.35	1.60	1.75 each.

Cans, Oil—
Buffalo Family Oil Cans:

3	5	10 gal.
$18.00	60.00	129.60 gro., net.

Caps, Percussion—
Eley's E. B....52@55¢
G. D....per M 34@35¢
F. L....per M 40@42¢
G. E....per M 48@50¢
Musket....per M 62@63¢

Primers—
Berdan Primers, $2 per M...20%
B. L. Caps (Sturtevant Shells) $2 per M....20%
All other primers per M. $1.52@1.60

Cartridges—
Blank Cartridges:
32 C. F., $5.50....10&5%
38 C. F., $7.00....10&5%
22 cal. Rim, $1.50....10&5%
32 cal. Rim, $2.75....10&5%
B. B. Caps, Con. Ball, Swgd. $1.90
B. B. Caps, Round Ball....$1.49
Central Fire....25%
Target and Sporting Rifle..15&5%
Primed Shells and Bullets. 15&10%
Rim Fire, Sporting....50%
Rim Fire, Military....15&5%

Casters—
Bed....70@70&10%
Plate....60&10@60&10&5%
Philadelphia....75@75&10%
Acme, Ball Bearing....33⅓%
Boss....70&10%
Boss Anti-Friction....70&10%
Gem (Roller Bearing)....80%
Martin's Patent (Phoenix)....45%
Standard Ball Bearing....45%
Tucker's Patent low list....30%
Yale (Double Wheel) low list....50%

Cattle Leaders—
See *Leaders, Cattle.*

Chain, Coil—
American Coil, Straight Link:

3-16	¼	5-16	⅜	7-16	½	9-16
$3.70	5.90	4.95	4.20	4.05	3.95	3.90
⅝	¾	⅞ to 1	1⅛ to 1¼ inch.			
$3.85	3.70	3.65	3.80			

German Coil....60&10&10@70%

Halter—
Halter Chains....60&5@60&10%
German Pattern Halter Chains, list July 24, '97....60&10&10%
Covert Mfg. Co. Halter....35&5%
Covert's Saddlery Works Halter....70%

Cow Ties—
See *Halters and Ties.*

Trace, Wagon, &c.—
Traces, Western Standard: 100 pr.
6½—6-3, Str'ght, with ring. $25.00
6½—6-2, Str'ght, with ring. $26.00
6½—8-2, Str'ght, with ring. $30.00
6½—10-2, Str'ght, with ring. $35.00
NOTE.—Add 2c per pair for Hooks. Twist Traces 2c per pair higher than Straight Link.
Eastern Standard Traces, Wagon Chain, &c....60&10%

Miscellaneous—
Jack Chain, list July 10, '93:
Iron....60&10&5@70%
Brass....60&10@60&10&10%
Safety Chain....75@75&10%
Gal. Pump Chain....lb. 4@4½%
Covert Mfg. Co.:
Breast, Halter, Heel, Rein, Stallion....40%
Covert Sad. Works:
Breast, Hold Back, Rein....70%
Oneida Community:
Am. Dog Leads and Kennel Chains, 40@40&5%
Niagara Dog Leads and Kennel Chains....45@60&5%
Wire Goods Co.:
Dog Chain....70&10%
Universal Dbl.-Jointed Chain....50%

Chain and Ribbon, Sash—
Oneida Community:
Copper Chain....60&5%
Steel Chain....60%
Pullman:
Bronze Chain....60%
Steel Chain....60&10%
Sash Chain Attachments, per set. 8¢
Aluminoy Sash Ribbon, per 100 ft....$1.25@$3.00
Sash Ribbon Attachments, per set. 8¢

Chalk—(From Jobbers.)
Carpenters' Blue....gro. 38@40¢
Carpenters' Red....gro. 33@35¢
Carpenters' White....gro. 28@30¢
See also Crayons.

Checks, Door—
Bardsley's....45%
Eclipse....60&10%
Pullman, per gro....$54.00
Russwin....40%

Chests, Tool—
American Tool Chest Co.:
Boy's Chests, with Tools....55%
Youths' Chests, with Tools....40%
Gentlemen's Chests, with Tools..30%
Farmers', Carpenters', etc., Chests, with Tools....30%
Machinists' and Pipe Fitters' Chests, Empty....50%
Tool Cabinets....50%
C. E. Jennings & Co.'s Mechanics' Tool Chests....35⅓&10%

Chisels—Socket Framing and Firmer
Standard List....75@75&10%
Buck Bros....30%
Charles Buck....30%
C. E. Jennings & Co. Socket Firmer No. 10....60%
C. E. Jennings & Co. Socket Framing No. 15....60%
Ohio Tool Co.'s....70%
Swan's....75%
L. & I. J. White....30@30&5%
L. & I. J. White, Tanged....25&5%

Tanged—
Tanged Firmers....33 1-3@40%
Buck Bros....30%
Charles Buck....30%
C. E. Jennings & Co. Nos. 191, 181....25%

Cold—
Cold Chisels, good quality. 13@15¢ lb.
Cold Chisels, fair quality. 11@12¢
Cold Chisels, ordinary... 9@10¢

Chucks—
Almond Drill Chucks....35%
Almond Turret Six-Tool Chuck....35%
Beach Pat., each $8.00....35&5%
Empire....25%
Blacksmiths'....25%
Jacobs' Drill Chucks....35%
Pratt's Positive Drive....25%
Skinner Patent Chucks:
Independent Lathe Chucks....50%
Universal....50%
Combination....50%
Drill Chucks, New Model....30%
Drill Chucks, Standard....45%
Drill Chuck, Skinner Pat., all sizes..35%
Drill Chucks, Positive Drive....30%
Planer Chucks....25%
Face Plate Jaws....40%
Standard Tool Co.:
Improved Drill Chuck....45%
Union Mfg. Co.:
Combination....50%
Czar Drill....35%
Combination Geared Scroll....40%
Geared Scroll....40%
Independent....50%
Independent Steel....40%
Union Drill....45%
Universal....50%
Independent Iron F. Plate Jaws..40%
Independent Steel F. Plate Jaws..40%
Westcott Patent Chucks:
Lathe Chucks....50%
Little Giant Auxiliary Drill....50%
Little Giant Double Grip Drill..50%
Little Giant Drill, Improved....50%
Oneida Drill....50%
Scroll Combination Lathe....50%

Clamps—
Adjustable, Hammers'....20@20&5%
Cabinet, Sargent's....50&10%
Carriage Makers', P., S. & W. Co....40&10@50%
Carriage Makers', Sargent's....60%
Besly, Parallel....33⅓&10%
Lineman's, Utica Drop Forge & Tool Co....40%
Wood Workers, Hammers'....40&10%
Saw Clamps; see Vises, Saw Filers'.

Cleaners, Drain—
Iwan's Champion, Adjustable....55%
Iwan's Champion, Stationary....47%

Sidewalk—
Star Socket, All Steel..⅌ doz. $4.05 net
Star Shank, All Steel..⅌ doz. $3.24 net
W. & C. Shank, All Steel, ⅌ doz., 7½ in., $3.00; 8 in., $3.25.

Cleavers, Butchers'—
Foster Bros....30%
New Haven Edge Tool Co.'s....45%
Fayette R. Plumb....30%
L. & I. J. White....30%

Clippers, Horse and Sheep—
Chicago Flexible Shaft Company:
'98 Chicago Horse, each....$8.75
1902 Chicago Horse, each..$10.75
20th Century Horse, each..$5.00
Lightning Belt Horse, each $15.00
Chicago Belt Horse, each $20.00
Stewart's Enclosed Gear Horse, each....$6.75
Stewart's Patent Sheep Shearing Machine, each....$12.75
} 20%

Clips, Axle—
Regular Styles, list July 1, '05 80%

Cloth and Netting, Wire
—See *Wire, &c.*

Cocks, Brass—
Hardware list:
Compression, Plain Bibbs, Globe, Kerosene, Racking, &c., Cocks....75@75&5%

Coffee Mills—
See *Mills, Coffee.*

Collars, Dog—
Nickel Chain, Walter B. Stevens & Son's list....40%
Leather, Walter B. Stevens & Son's list....40%

Combs, Curry—
Metal Stamping Co....40%

Mane and Tail—
Covert's Saddlery Works....60&10%

Compasses, Dividers, &c.
Ordinary Goods....75&5@75&10%
Bemis & Call Hdw. & Tool Co.:
Dividers....65%
Calipers, Double....65%
Calipers, Inside or Outside....65%
Calipers, Wing....60%
Compasses....50%
Wm. Schollhorn Co.:
Excelsior Dividers....60%
Lodi Dividers....75%

Conductor Pipe,—
L. C. L. to Dealers:

Territory:	*Galvanized Galv. Steel.*	*Charcoal Iron.*	*Copper.*
Eastern:			
70&10 %	*60&7½%*		*50%*
Central:			
70&2½%	*60 %*	*40&10&5%*	
Western and S. W.:			
65&10 %	*50&10&2½%*		*47½%*
So. Western			
62½&7½%	*50&5%*		*40&10%*

Copper....14&16 oz.
Eastern....50&10%
Central....50&7½%
Southern....50&5%
So. Western....50&2½%
Terms, 60 days; 2% cash 10 days. Factory shipments generally delivered.
See also Eave Troughs.

Coolers, Water—

Gal. each..	2	3	4	6	8
Labrador	$1.20	$1.50	$1.80	$2.10	$2.70
Gal.	3	4	6	8	
Iceland, ea.	$1.80	$2.10	$2.40	$3.00	
Gal.	2	3	4	6	8
Galvanized, ea.	$1.85	$2.00	$2.25	$2.90	$3.90
Galvanized, Lined, side handles, Gal.	2	3	4	6	8
Each	$1.95	$2.15	$2.40	$3.30	$4.15

White Enameled....25%
Agate Lined....25%

Coopers' Tools—
See *Tools, Coopers'.*

Coppers' Soldering—
Soldering Coppers, 3 lbs. to pair and heavier, 23@24¢; lighter than 3 lbs. to pair....25@26¢

Cord—Sash—
Braided, Drab....lb. 35¢
Braided, White, Com., Nos. 8 to 12, 24¢; No. 7, 24½¢; No. 6, 25½¢.
Cable Laid Italian....lb., A, 18¢; B, 16¢
Common India....lb. 10@10½¢
Cotton Sash Cord, Tw'ted. 17@19¢
Patent Russia....lb...@14¢
Cable Laid Russia....lb...@15¢
India Hemp, Braided. lb...@18¢
India Hemp, Twisted. lb. 12@13¢
Patent India, Twisted. lb. 12@13¢
Anniston Cordage Co.: ⅌ doz., 50 ft., Oriole, $2.00; 50 ft., Columbia, $0.85; 50 ft., Victors, $1.00; 50 ft., 6-Thread, $1.10; 60 ft., 3-Thread, $0.95; 50 ft., Manila, $1.40; 60 ft., Jute, $0.75.
Pearl Braided, cotton, No. 6, ⅌ lb., 24½¢; No. 7, 23½¢; Nos. 8 to 12, 22¢
Eddystone Braided, Nos. 8, 9 and 10, 25¢; 7, 25½¢; 6, 26½¢.
Harmony Cable Laid Italian, Nos. 7 to 10....⅌ lb 23 ¢
Peerless:
Cable Laid Italian....16 ¢
Cable Laid Russian....14 ¢
Cable Laid India....12 ¢
Braided India....18 ¢
Pullman:
Wire Sash Cord....10%
Sash Cord Attachments, per doz. 10¢
Samson, Nos. 8 to 12:
Braided, Drab Cotton....⅌ lb 40 ¢
Braided, Italian Hamp....⅌ lb 40 ¢
Braided, Linen....⅌ lb 55 ¢
Braided, White Cotton or Spot....⅌ lb 35 ¢
Massachusetts, White....⅌ lb 30 ¢
Massachusetts, Drab....⅌ lb 35 ¢
Phoenix, White, Nos. 8 to 12, 27¢; No. 7, 27½¢; No. 6, 28½¢.
Silver Lake:
A, Drab....45 ¢
A, White....40 ¢
B, Drab....40 ¢
B, White....35 ¢
Italian Hemp....40 ¢
Linen....57½ ¢
See also Chain and Ribbon.

Wire, Picture—
List Oct., '00....85&10&10@85&10&10&5%
Hendryx Standard Wire Picture Cord, 85&10%

Cradles—
Grain....40&12½%

Crayons—
White Round Crayons, gr. 6@6½¢
Cases, 100 gro., $5.00 at factory.

D. M. Steward Mfg. Co.:
Genuine, Per gro.
Round Pencil, $2.25; Square Pencil, $1.75; Flat Crayon, $2.50; Metal Workers' Crayon, $3.00; Rolling Mill Crayon, $3.00.
Compo. Per gro.
Round Pencil, $1.50; Square Pencil, $1.50; Flat Crayon, $1.50; Metal Workers' Crayon, $2.50; Rolling Mill Crayon, $2.50; Railroad Crayon, $1.00; Compo. Crayon, $4.00.
} Case lots, 50&20%

Zelnicker's Lumber:
Red, Blue, Green....⅌ gro. $6.50
Black....⅌ gro. $4.00
See also Chalk.

Crooks, Shepherds'—
Fort Madison, Heavy....⅌ doz. $7.00
Fort Madison, Light....⅌ doz. $6.50

Crow Bars—See *Bars, Crow.*

Cultivators—
Victor Garden....50%

Cutlery, Table—
International Silver Company:
No. 12 M'd'm Knives, 1847....⅌ doz. $3.50
Star, Eagle, Rogers & Hamilton and Anchor....⅌ doz. $3.00
Wm. Rogers & Son....⅌ doz. $2.50

Cutters—Glass—
H. H. Mayhew Co....40%
Red Devil....50%
Smith & Hemenway Co....50%
Woodward....40%

Meat and Food—
American....30%

Nos.	1	2	3	4	B	5
Each	$5	$7	$10	$25	$50	$60

Enterprise....25@25&7½%

Nos.	5	10	12	22	32
Each	$2	$3	$2.75	$4.50	$6

Dixon's....⅌ doz. 40@50%

Nos.	1	2	3	4
	$14.00	$17.00	$19.00	$30.00

Ideal....40&10@50%
Little Giant....⅌ doz. 40@50%

Nos.	305	310	312	320	322
	$35.00	$48.00	$44.00	$72.00	$68.00

N. E. Food Choppers....25%
New Triumph No. 605, ⅌ doz. $24.00.. 40@50%
Russwin Food, No. 1, $24.00; No. 2, $20.00....45&10&10%
Woodruff's....⅌ doz. 40@50%

Nos.	100	150
	$15.00	$18.00

Enterprise Beef Shavers....25@30%

Slaw and Kraut—
Henry Disston & Sons:
Slaw, Corn Grater, &c....40%
Kraut Cutters, 24 x 7, 26 x 8, 30 x 9....55%
Kraut Cutters, 36 x 12, 40 x 12....40%
J. M. Mast Mfg. Co.:
Slaw Cutters, 1 Knife....⅌ doz. $3.00
Combined Slaw Cutter and Corn Grater....⅌ doz. $4.00
Tucker & Dorsey Mfg. Co.:
Kraut Cutters....40%
Slaw Cutters, 1 Knife..⅌ gr. $18@$20
Slaw Cutters, 2 Knife..⅌ gr. $22@$24

Tobacco—
All Iron, Cheap..doz. $4.25@$4.50
Enterprise....25@30%
National, ⅌ doz., No. 1, $21; No. 2, $18....40%
Sargent's, ⅌ doz., No. 2....60%
Sargent's, Nos. 12 and 21....60&10%

Washer—
Appleton's, ⅌ doz., $16.00....50&10&10%

Diggers, Post Hole, &c.—
Dalbey Post Hole Auger..per doz. $9.00
Iwan's Imp'ved Post Hole Auger. 40&5%
Iwan's Vaughan Pattern Post Hole Augers....⅌ doz. $6.25
Iwan's Perfection Post Hole Digger...⅌ doz. $8.25
Iwan's Split Handle Post Hole Diggers....⅌ doz. $7.25
Kohler's Universal....⅌ doz. $14.00
Kohler's Little Giant....⅌ doz. $12.00
Kohler's Hercules....⅌ doz. $10.00
Kohler's Invincible....⅌ doz. $9.00
Kohler's Rival....⅌ doz. $8.00
Kohler's Pioneer....⅌ doz. $7.00
Never-Break Post Hole Diggers, ⅌ doz., $24.00....60%
Samson, ⅌ doz. $34.00....25%

Dividers—See *Compasses.*

Drawers, Money—
Tucker's Pat. Alarm Till No. 1, ⅌ doz., $18; No. 2, $15; No. 3, $12; No. 4, $18.

Drawing Knives—
See *Knives, Drawing.*

Dressers, Emery Wheel—
Diamond Emery Wheel Dressers....35%
Diamond Wheel Dresser Cutters....35%

Drills and Drill Stocks—
Common Blacksmiths' Drill, each....$1.50@$1.75
Breast, Millers Falls....15&10%
Breast, P., S. & W....40%
Goodell Automatic Drills..40&5@40&10%
Johnson's Automatic Drills, Nos. 2 and 3....16⅔%
Johnson's Drill Points....16⅔%
Millers Falls Automatic Drills. 33⅓&10%
Ratchet, Curtis & Curtis....25%
Ratchet, Parker's....40%
Ratchet, Weston's....40%
Ratchet, Weston's, Style H Improved....40%
Ratchet, No. 012....40%
Ratchet, Whitney's, P., S. & W..50%
Whitney's Hand Drill, No. 1, $10.00; Adjustable, No. 10, $12.00....33⅓%

Twist Drills—
Bit Stock....60&10&10@70%
Taper and Straight Shank....60&10@60&10&5%

Drivers, Screw—
Screw D'ver Bits, per doz. 45@50¢
Balsey's Screw Holder and Driver, ⅌ doz., 2½-in., $6; 4-in., $7.50; 6-in., $9....50%
Buck Bros.' Screw Driver Bits....30%
Champion....50%
Edson....60%
Fray's Hol. H'dle Sets, No. 3, $12..50%
Gay's Double Action Ratchet....35%
Goodell's Auto..50&10&10@50&10&10&5%
Hurwood....40%
Mayhew's Black Handle....40%
Mayhew's Monarch....40&10%
Millers Falls, Nos. 20 and 21....25&10%
Millers Falls, Nos. 11, 12, 41, 42..15&10%
New England Specialty Co....50&10%
Sargent & Co.'s:
Nos. 1 and 60....50&10&10%
Nos. 50, 53 and 55....60&10%
Nos. 20 and 40....70&10%
Smith & Hemenway Co....40&5%
H. D. Smith & Co.'s Perfect H'dle. 40%
Stanley R. & L. Co.'s:
No. 64, Varn. Handles....65%
No. 86....75%
Victor....55%
Defiance....70%
Swan's:
Nos. 7565 to 7568....50%
No. 7540....40&10%

Eave Trough, Galvanized—

Territory.	*L. C. L. Galvanized Galv. Steel.*	*Charcoal Iron.*	*Copper.*
Eastern:			
80&2½%	*70&7½%*		*50%*
Central:			
75&10&7½%	*70%*	*40&10&5%*	
Western and S. W.:			
70&20&7½%	*60&15&2½%*		*47½%*
So. Western:			
70&20%	*65&2½%*		*40&10%*

Terms,—2% for cash. Factory shipments generally delivered.
See also Conductor Pipe and Elbows.

Elbows and Shoes—
Factory shipments, all territories:
Galv. Steel and Galv. C. I. Gauge....60&10%
No. 26....50%
No. 24....25%
No. 22....10%
Copper....50%

Elbows, Stove Pipe—
Dover, one piece....40%
Perfect Elbows (R. M. Co.)....40%

Emery, Turkish—

	4 to 46	*54 to 220*	*Flour.*
Kegs....lb.	*5 ¢*	*5½ ¢*	*8½ ¢*
½ Kegs....lb.	*5½ ¢*	*5¾ ¢*	*8¾ ¢*

¼ Keys....lb.	5½¢	6 ¢	4 ¢
10-lb. cans, 10 in case....	6½¢	7 ¢	6 ¢
10-lb. cans, less than 10.....	10 ¢	10 ¢	8 ¢
Less quantity..	10 ¢	10 ¢	8 ¢

NOTE.—In lots 1 to 3 tons a discount of 10% is given.

Extractors, Lemon Juice
—See *Squeezers, Lemon.*

Fasteners, Blind—
Zimmerman's .....50&10%
Walling's .....40&10%

Cord and Weight—
Ives 40%

Faucets—
Cork Lined.....50@50&10%
Metallic Key, Leather Lined.. 60&10@70%
Red Cedar.....40&10@50%
Petroleum .....70&10@75%
B. & L. B. Co.:
Metal Key.....60&10%
Star 60%
West Lock.....50&10%
John Sommer's Peerless Tin Key....40%
John Sommer's Boss Tin Key.....50%
John Sommer's Victor Mtl. Key.50&10%
John Sommer's Duplex Metal Key..60%
John Sommer's Diamond Lock.....40%
John Sommer's I.X.L. Cork Lined...50%
John Sommer's Reliable Cork Lined.. 50&10%
John Sommer's Chicago Cork Lined.60%
John Sommer's O. K. Cork Lined...50%
John Sommer's No Brand, Cedar....50%
John Sommer's Perfection, Cedar....40%
McKenna, Brass:
Burglar Proof, N. P.....25%
Improved, ¾ and ⅞ inch.....25%
Self Measuring:
Enterprise, ℔ doz. $36.00.....40&10%
Lane's, ℔ doz. $36.00.....40&10%
National Measuring, ℔ doz. $36.40&10%

Felloe Plates—
See *Plates, Felloe.*

Files— Domestic—
List revised Nov. 1, 1899.
Best Brands.....70&10@75&10%
Standard Brands.75&10@75&10&10%
Lower Grade....75&10&10@80&10%

Imported—
Stubs' Tapers, Stubs' list, July 24, '97.....33 1-3@40%

Fixtures, Fire Door—
Richards Mfg. Co.:
Universal, No. 103.....$3.75
Special, No. 104.....$3.75
Fusible Links, No. 96.....50%
Expansion Bolts, No. 107.....60&10%

Grindstone—
Net Prices:

Inch	*15*	*17*	*19*	*21*
Per doz.	*$3.25*	*3.75*	*4.25*	*4.75*

P., S. & W. Co.....30&10@40%
Reading Hardware Co.....60%
Sargent's 70%
Stowell's Giant Grindstone Hanger.. ℔ doz. $6.00
Stowell's Grindstone Fixtures, Extra Heavy .....50&10&10%
Stowell's Grindstone Fixtures, Light. 60&10%

Fodder Squeezers—
See *Compressors.*

Forks—
NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.
Iowa Dig-Ezy Potato.....60&10%
Victor, Hay.....60&15&2½%
Victor, Manure.....66⅔%
Victor, Header.....65%
Champion, Hay.....66⅔%
Champion, Header.....65%
Champion, Manure.....60&15&2½%
Columbia, Hay.....60&20%
Columbia, Manure.....70%
Columbia, Spading.....70&12½%
Hawkeye Wood Barley.....40%
W. & C. Potato Digger.....60&10%
Acme Hay.....60&20%
Acme Manure, 4 tine.....60&10&5%
Dakota Header.....60&20%
Jackson Steel Barley.....60&20%
Kansas Header.....65%
W. & C. Favorite Wood Barley.....40%
Plated.—See Spoons.

Frames— Saw—
White, S'g't Bar, per doz..75@80¢
Red, S'g't Bar, per doz..$1.00@1.25
Red, Dbl. Brace, per doz.$1.40@1.50

Freezers, Ice Cream—

Qt.	*1*	*2*	*3*	*4*	*6*
Each	*$1.30*	*$1.60*	*$1.90*	*$2.20*	*$2.80*

Fruit and Jelly Presses—
See *Presses, Fruit and Jelly.*

Fry Pans—See *Pans, Fry.*

Fuse— *Per 1000 Feet.*
Hemp $2.75
Cotton 3.20
Waterproof Sgl. Taped..3.65
Waterproof Dbl. Taped..4.40
Waterproof Tpl. Taped..5.15
10&2½%

Gates, Molasses and Oil—
Stebbins' Pattern.....80&10%

Gauges—
Marking, Mortise, &c..50&10@60%
Chapin-Stephens Co.:
Marking, Mortise, &c.50&10@50&10&10%
Scholl's Patent.....50&10@50&10&10%
Door Hangers.....50@50&10%
Stanley R. & L. Co.'s Butt and Rabbet Gauge.....35%
Marking and Mortise.....60%
Wire, Brown & Sharpe's.....25%
Wire, Morse's.....25%
Wire, P. S. & W. Co.....33⅓%

Gimlets— Single Cut—
Numbered assortments, per gro.
Nail, Metal, No. 1, $2.00; 2, $2.30
Spike, Metal, No. 1, $4.00; 2, $4.30
Nail, Wood Handled, No. 1, $2.30; 2, $2.60
Spike, Wood Handled, No. 1, $4.30; 2, $4.60

Glass, American Window
See *Trade Report.*

Glasses, Level—
Chapin-Stephens Co.....60@60&10&10%

Glue, Liquid Fish—
Bottles or Cans, with Brush.. 25&10@50%
International Glue Co. (Martin's)..40%

Grease, Axle—
Common Grade....gro. $4.50@6.00
Dixon's Everlasting..10-lb pails, ea. 85¢
Dixon's Everlasting, in boxes, ℔ doz. 1 lb, $1.20; 2 lb, $2.00
Helmet Hard Oil.....25%

Griddles, Soapstone—
Pike Mfg. Co.....33⅓@33⅓&10%

Grindstones—
Bicycle Emery Grinder.....$6.50
Bicycle Grindstones, each.....$2.50@3.00
Pike Mfg. Co.:
Improved Family Grindstones, per inch, ℔ doz.....$2.00 } 33⅓%
Pike Mower and Tool Grinder, each $6.00
Velox Ball Bearing, Mounted, Angle Iron Frames, each.....$3.00

Grips, Nipple—
Perfect Nipple Grips.....40&10&2%

Halters and Ties—
Cow Ties.....60&10@60&10&5%
Covert Mfg. Co.:
Web 45%
Jute Rope.....45%
Sisal Rope.....33⅓%
Cotton Rope.....45%
Hemp Rope.....45%
Corert's Saddlery Works:
Web and Leather Halters.....70%
Jute and Manila Rope Halters....70%
Sisal Rope Halters.....60&20%
Jute, Manila and Cotton Rope Ties 70%
Sisal Rope Ties.....60&10%
Oneida Community:
Am. Coil and Halters.....40@40&5%
Am. Cow Ties.....45@50%
Niagara Coil and Halters..45@50&5%
Niagara Cow Ties....45&5@50&10&5%
E. T. Rugg & Co.:
Leather Halters.....50%
Web Halters and Webbing.....60%
Jute and Sisal Rope Halters.....60%
Jute and Sisal Horse and Cattle Ties 60%
Cotton Horse Ties.....60%
Livery Ties, Braided.....60%

Hammers—

Handled Hammers—
Heller's Machinists'...40&10@40&10&10%
Heller's Farriers.....40&10@40&10&10%
Magnetic Tack, Nos. 1, 2, 3, $1.25, $1.50, $1.75.....50%
Peck, Stow & Wilcox, Steel.....50%
Fayette R. Plumb:
Plumb, A. E. Nail.....33⅓&7½@33⅓&10&7½%
Engineers' and R. S. Hand.....50&7½&5@50&10&7½&5%
Machinists' Hammers.50&5@50&10&5%
Riveting and Tinners'.....40&2½@40&10&2½%
Sargent's C. S. New List.....40%

Heavy Hammers and Sledges—
Under 3 lb., per lb., 50¢...80&10%
3 to 5 lb., per lb., 40¢.....80&10%
Over 5 lb., per lb., 30¢..80&10&10%
Wilkinson's Smiths'...lb. 9½@10¢

Handles—

Agricultural Tool Handles
Axe, Pick, &c....60&10@60&10&5%
Hoe, Rake, &c.....45@50%
Fork, Shovel, Spade, &c.:
Long Handles.....45@50%
D Handles.....50@50&5%

Cross-Cut Saw Handles—
Atkins' 40%
Champion .....45@45&10%
Disston's 50%

Mechanics' Tool Handles—
Auger, assorted...gro. $2.50@3.00
Brad Awl.....gro. $1.65@1.75
Chisel Handles:
Apple Tanged Firmer, gro. assorted .....$2.40@2.65
Hickory Tanged Firmer, gro. assorted .....$2.15@2.40
Apple Socket Firmer, gro. assorted .....$1.75@1.95
Hickory Socket Firmer, gro. assorted .....$1.45@1.60
Hickory Socket Framing, gro. assorted .....$1.60@1.75
File, assorted.....gro. $1.30@1.40
Hammer, Hatchet, &c. 60&10@60&10&5%
Hand Saw, Varnished, doz. 80&85¢; Not Varnished...65@75¢
Plane Handles:
Jack, doz. 30¢; Jack, Bolted.75¢
Fore, doz. 45¢; Fore, Bolted.90¢
Chapin-Stephens Co.:
Carving Tool.....40@40&10%
Chisel .....65@65&10%
File and Awl.....65@65&10%
Saw and Plane.....40@40&10%
Screw Driver.....40@40&10%
Millers Falls Adj. and Ratchet Auger Handles .....15&10%
Nicholson Simplicity File Handle.... ℔ gro. $0.85@$1.50

Hangers—
NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, &c.
Allith Mfg. Co.:
Reliable, No. 1.....per doz. $8.00
Reliable, No. 2.....per doz. $9.60
Chicago Spring Butt Co.:
Friction 25%
Oscillating 25%
Big Twin.....25%
Culsmom & Moore Mfg. Co.:
Baggage Car Door.....50%
Elevator 30%
Railroad 50%
Cronk & Carrier Mfg. Co.:
Loose Axle.....60&10%
Roller Bearing.....70%
Griffin Mfg. Co.:
Solid Axle, No. 19, $12.00.....70%
Roller Bearing, No. 11, $15.00.70%
Roller Bearing, Ex. Hy., No. 22, $18.00.....70%
Hinged Hangers, $16.00....60&10%
Lane Bros. Co.:
Parlor, Ball Bearing.....$4.00
Parlor, Standard.....$3.15
Parlor, No. 105.....$2.85
Parlor, New Model.....$2.80
Parlor, New Champion.....$2.25
Barn Door, Standard.....60&5%
Hinged.....net $6.40
Covered .....60&2%
Special .....70&5%
Lawrence Bros.:
Advance .....60&10%
Cleveland 75%
Clipper, No. 75.....60%
Crown .....60&10%
Easy Parlor Door, Dbl. Sets, $2.50; Single Sets, $1.25.
Giant .....60&5%
Hummer .....70&5%
New York.....60&10%
Peerless 75%
Sterling .....60&10%
McKinney Mfg. Co.:
No. 1, Special, $15.....60&10%
No. 2, Standard, $18.....60&10%
Hinged Hangers, $16.....50%
Meyers' Stayon Hangers.....60&5%
Richards Mfg. Co.:
Pioneer Wood Track No. 3..$2.00
Ball B'r'g St'l Track No. 10,50&10%
Roller B'r'g St'l Track No. 12,$2.15
Roller B'r'g St'l Track No. 13,$2.30
Hero, Adj. Track No. 19..50&10%
Adjustable Track Tandem Trolley Track No. 16.....50&10%
Seal, Steel Track No. 8.....$2.25
Auto Adj. Track No. 22..50&10%
Trolley B. D. No. 17.....$1.25
Trolley F. D. No. 120.....$2.10
Trolley F. D. No. 121.....$2.25
Trolley F. D. No. 150.....$2.35
Safety Underwriters F. D. No. 101 .....50%
Tandem No. 44..2½ and 3 60&10%
Palace, Adjustable Track No. 132 .....50&10%
Royal, Adjustable Track No. 122 .....50&10%
Ives' Wood Track No. 1.....$2.00
Trolley B. D. No. 20..50&10%
Trolley B. D. No. 24.....$1.30
Trolley B. D. No. 27.....$1.40
Trolley B. D. No. 28.....$1.60
Roller Bearings Nos. 39, 41, 43 .....75%
Anti-friction No. 42.....60&20%
Hinged Tandem No. 48....60&5%
Folding Door B. B. Swivel No. 135 .....40%
Safety Door Hanger Co.:
Storm King Safety.....60%
U. S. Standard Hinge.....60%
Stowell Mfg. & Foundry Co.:
Acme Parlor Ball Bearing....40%
Ajax Hinge Door.....60%
Apex Parlor Door.....50&10&5%
Atlas 60%
Baggage Car Door.....50%
Climax Anti-Friction.....50&10%
Elevator 40%
Express 50%
Freight Car Door.....60%
Interstate .....60&10%
Lundy Parlor Door.....50&10%
Magic 60%
Matchless .....60&10%
Nansen .....70&5%
Parlor Door.....50&10%
Railroad .....50&10%
Rex Hinge Door.....60%
Street Car Door.....50%
Steel, Nos. 300, 404, 500....50&10%
Underwriters' Fire Door.....40%
Wild West Warehouse Door..50%
Zenith Car Wood Track....50&10%
A. L. Sweet Iron Works:
Check Back.....70%
Climax Anti-Friction.....50&10%
Eagle 70%
Hylo Hinge.....60%
New Perfection.....60%
Pilot 60%
Pilot Hinge.....60%
Rider Wooster.....65%
Western Pattern.....70%
Taylor & Boggis F'y Co.'s Kidder's Roller Bearing.50&15&10&5%
Wilcox Mfg. Co.:
Bike Roller Bearing..℔ doz. $5.00
C. J. Roller Bearing.....60&10%
Cycle Ball Bearing.....50%
Dwarf Ball Bearing.....40%
Ives, Wood Track.....60&10%
L. T. Roller Bearing...60&10&5%
New Era Roller Bearing..50&10%
O. K. Roller Bearing..60&10&5%
Prindle, Wood Track.....60%
Richards' Wood Track.....60%
Richards' Steel Track.....50&10%
Spencer Roller Bearing....60&10%
Tandem, Nos. 1 and 2.....60%
Underwriters' Roller Bearing..40%
Velvet 50%
Wilcox Auditorium Ball B'r'g.20%
Wilcox Barn Trolley No. 125..40%
Wilcox Elv. Door, Nos. 112 and 122½.....50%
Wilcox Elv. Door, No. 152....40%
Wilcox Fire Trolley, Roller Bearing.....30%
Wilcox Le Roy Noiseless Ball Bearing 40%
Wilcox New Century..50&10&10%
Wilcox O. K. Steel Track....50%
Wilcox O. K. Trolley.....50%
Wilcox Trolley Ball Bearing..40%
Wilcox Wideman Narrow Gauge Ball Bearing.....40%
For Track, see Rail.

Extra 5@10% often given.

Hangers— Garment—
Pullman Trouser, ℔ gro., 1 pair Flat Aluminoy, $9.00; 1 pair Round Nickeled, $9.60; 4 pair Round Nickeled.. $27.00
Victor Folding.....℔ gro. $9.60
Western, W. G. Co.....70&10%

Gate—
Myers' Patent Gate Hangers, ℔ doz. net $4.50

Joist and Timber—
Lane Bros. Co.....30%

Hasps—
Griffin's Security Hasp.....50%
McKinney's Perfect Hasp, ℔ doz..50%

Hatchets—
Regular list, first quality....50%
Second quality $1.00 per doz. less than first quality.

Heaters, Carriage—
Clark, No. 5, $1.75; No. 5B, $2.00; No. 3, $2.25; No. 3D, $2.75; No. 7D, $3.00; No. 3E, $3.25; No. 1, $3.50.....15%
Clark Coal, ℔ doz. $0.75.....10%

Hinges—

Blind and Shutter Hinges—
Surface Gravity Locking Blind: (Victor; National; 1868 O. P.; Niagara; Clark's O. P.; Clark's Tip; Buffalo.)

No.	*1*	*3*	*5*
Doz. pair	*$0.75*	*1.35*	*2.70*

Mortise Shutter: (L. & P., O. S., Dixie, &c.)

No.	*1*	*1½*	*2*	*2½*
Doz. pair	*$0.70*	*.65*	*.60*	*.55*

Mortise Reversible Shutter (Buffalo, &c.):

No.	*1*	*1½*	*2*
Doz. pair	*$0.70*	*.65*	*.60*

North's Automatic Blind Fixtures, No. 2, for Wood, $9.00; No. 3, for Brick, $11.50.....10%
Charles Parker Co.....70@75%
Parker Wire Goods Co.:
Hale & Benjamin Automatic Blind Hinges 20%
Hale's Blind Awning Hinges, No. 110, for wood, $9.00; No. 111, for brick, $9.00.....20%
Reading's Gravity.....60%
Sargent's, Nos. 1, 3, 11 and 13..75&10%
Stanley's Steel Gravity Blind Hinges, ℔ doz. sets, without screws, $0.90; with screws, $1.20.
Wrightsville Hardware Co.:
O. S., Lull & Porter.....75&10&5%
Acme, Lull & Porter.....75&10%
Queen City Reversible.....75&10%
Shepard's Noiseless, Nos. 60, 65, 55 .....75&10%
Niagara, Gravity Locking, Nos. 1, 3 & 5.....75&10&5%
1868, Old Pat'n, Nos. 1, 3 & 5.... 75&10&5%
Tip Pat'n, Nos. 1, 3 & 5.... 75&10&5%
Buffalo Gravity Lockir , Nos. 1, 3 & 5.....75&10&5%
Shepard's Double Locking, Nos. 20 & 25.....70%
Champion Gravity Locking, No. 75.75%
Steamboat Gravity Locking, No. 10.75%
Pioneer, Nos. 060, 45 & 5½.....75%
Empire, Nos. 101 & 103.....70%
W. H. Co.'s Mortise Gravity Locking, No. 2.....60%

Gate Hinges—
Clark's or Shepard's—Doz. sets:

No.	*1*	*2*	*3*
Hinges with L'tchs.	*$2.00*	*2.70*	*5.00*
Hinges only	*1.40*	*2.05*	*3.80*
Latches only	*.70*	*.70*	*.35*

New England:
With Latch.....doz. ...@$2.00
Without Latch...doz. ...@$1.60
Reversible Self-Closing:
With Latch.....doz. ...@$1.75
Without Latch...doz. ...@$1.35
Western:
With Latch.....doz. $1.75
Without Latch.....doz. $1.15
Wrightsville Hardware Co.:
Shepard's or Clark's, doz. sets,

Nos.	1	2	3
Hinges with Latches	$2.00	2.70	5.00
Hinges only	1.40	2.05	3.80
Latches only	.70	.70	1.35

Pivot Hinges—
Bommer Bros. Pivot.....40%
Lawson Mfg. Co. Matchless.....45%

Spring Hinges—
Holdback, Cast Iron...$6.50@$7.00
Non-Holdback, Cast Iron$6.25@$6.75
J. Bardsley:
Bardsley's Non-Checking Mortise Floor Hinges.....45%
Bardsley's Patent Checking..15%
Bommer Bros.:
Bommer Ball Bearing Floor Hinges 40%
Bommer Spring Hinges.....40%
No. 999 Wrot, Steel Hold Back, ℔ gr. $9.00
Chicago Spring Butt Co.:
Chicago Spring Hinges.....25%
Triple End Spring Hinges....50%
Chicago (Ball Bearing) Floor Hinge 50%
Garden City Engine House....25%
Keene's Saloon Door.....25%
Columbian Hardware Co.:
Acme, Wrought Steel.....30%
Acme, Brass.....25%
American 30%
Columbia, No. 14.....℔ gr. $9.00
Columbia, No. 18.....℔ gr. $25.00
Columbia, Adjustable, No. 7, ℔ gr. $12.00
Gem, new list.....30%
Clover Leaf.....℔ gr. $12.00
Oxford, new list.....30%
Lawson Mfg. Co. Matchless....30%
Richards Mfg. Co.:
Superior Double Acting Floor Hinges 40%
Shelby Spring Hinge Co.:
Buckeye All Steel Holdback Screen Door.....℔ gr. $9.00
Ball Bearing Floor Hinge....50%
Ohio Detachable Screen Door Hinge .....℔ gr. $12.00
The Stover Mfg. Co.:
Ideal, No. 16, Detachable, ℔ gr. $12.50
Ideal, No. 4.....℔ gr. $9.00
New Idea, No. 1.....℔ gr. $9.00
New Idea, Double Acting....45%
New Idea, Floor.....45%
Van Wagoner:
Ball Bearing.....25%
No. 777 Sh't Steel Holdb't. ℔ gro. pr. $9

Extra 10% often given on most of these Hinges.

Wrought Iron Hinges—

Strap and T Hinges, &c., list December 20, 1904:

Light Strap Hinges..70%
H'vy Strap H'g's...75&5%
Light T Hinges.....65%
Heavy T Hinges.....60%
Extra H'y T H'g's.70&10%
Hinge Hasps.....50%
Cor. Heavy Strap..75&5%
Cor. Ex. Heavy T.70&10%
} Extra 10@10&5%

Screw Hook and Strap.
6 to 12 in...lb. 3¾¢
1¼ to 20 in...lb. 3½¢
22 to 36 in...lb. 3¼¢

Screw Hook and Eye:
¾ to 1 inch.....lb. 6½¢
⅝-inch.....lb. 7½¢
½-inch.....lb. 8½¢

Hitchers, Stall—

Covert Mfg. Co., Stall Hitchers..30&2%

Hods— Coal—

	Per doz.
Inch	15 16 17 18
Galv. Open	$2.50 2.75 3.00 3.25
Jap. Open	$1.90 2.10 2.25 2.55
Galv. Funnel	$3.00 3.30 3.60 3.90
Jap. Funnel	$2.45 2.65 2.85 3.30

Masons' Etc.—

Cleveland Wire Spring Co.:
Steel Brick, No. 162.....each $0.95
Steel Mortar, No. 158.....each $1.25

Hoes— Eye—

Scovil and Oval Pattern.....
60&10@60&10&10%
Grub, list Feb. 23, 1899.....
70&10@75&10%
D. & H. Scovil.....33⅓%

Handled—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Cross's Weeding No. 1, $2.00; No. 2, $2.25
Ft. Madison Cotton Hoe....70&10&10%
Ft. Madison Crescent Cultivator Hoe, ℔ doz.....70&10%
Ft. Madison Mattock Hoes:
Regular Weight.....℔ doz. 66⅔%
Junior Size.....℔ doz. $4.00
Ft. Madison Sprouting Hoe..℔ doz. 50%
Ft. Madison Dixie Tobacco Hoe.....
75&10&7½%
Kretsinger's Cut Easy.....70&10%
Warren Hoe.....45&10%
W. & C. Ivanhoe.....75&2%
B. B. 6 in., Cultivator Hoe.....$3.15
B. B., 6¼ in.....$3.35
Acme Wedding.....℔ doz., net, $4.35
W. & C. L'tning Shuffle Hoe,℔doz.$4.85

Hoisting Apparatus—

See *Machines, Hoisting.*

Holders— Bit—

Angular, ℔ doz. $24.00.....45&10%

Door—

Bardsley's.....45%
Empire.....50%
Pullman.....50%

File and Tool—

Nicholson File Holders and File Handles.....33⅓@40%

Fruit Jar—

Triumph Fruit Jar Holder, ℔ gross, $10.80; ℔ doz.....$1.25

Hones—Razor—

Pike Mfg. Co., Belgian, German and Swaty.....50%

Hooks—Cast Iron—

Bird Cage, Reading.....40%
Bird Cage, Sargent's List.....60&10%
Ceiling, Sargent's List, Nos. 29, 32, 33, 129, 132, 133 and 135.....50&10&10%
Clothes Line, Reading List.....40%
Clothes Line, Sargent's List.50&20&10%
Coat and Hat, Sargent's List...50&10%
Clothes Line, Stowell's.....70%
Coat and Hat, Reading.....45&20%
Coat and Hat, Stowell's.....70%
Coat and Hat, Wrightsville.....65%
Harness, Reading List.....40%
Harness, Stowell's.....60%
School House, Stowell's.....70%

Wire—

Belt.....80&10@..%
Wire C. & H. Hooks:.....
75&10@75&10&10%
Columbian Hdw Co., Gem.....70&10%
Parker Wire Goods Co., King..70&10%
Van Wagoner, Coat and Hat.....70%
Western W. G. Co. Molding.....75%
Wire Goods Co.:
Acme.....60&10%
Chief.....70%
Crown.....75%
Czar.....65%
V Brace.....75%
Czar Harness.....50&10%

Wrought Iron—

Box, 6 in., per doz., $1.00; 8 in., $1.25; 10 in., $3.50.
Cotton.....doz. $1.05@$1.25
Wrought Staples, Hooks, &c.—
See Wrought Goods.

Miscellaneous—

Hooks, Bench, see *Stops, Bench.*
Bush, Light, doz. $1.75; Medium, $5.35; Heavy, $6.25
Grass, best, all sizes, per doz.$1.60
Grass, common grades, all sizes, per doz......$1.30
Whiffletree.....lb. 5¾@6¢
Hooks and Eyes:
Brass.....60&5@60&10&5%
Malleable Iron.....70@70&10%
Covert Mfg. Co, Gate and Scuttle Hooks.....40%
Covert Saddlery Works' Self Locking Gate and Door Hook.....60%
Ft. Madison Cut-Easy Corn Hooks, ℔ doz. $3.25 net
Bench Hooks—See Bench Stops.
Corn Hooks—See Knives, Corn.

Horse Nails—

See *Nails, Horse.*

Horseshoes—

See *Shoes, Horses.*

Hose, Rubber—

Garden Hose, ¾-inch:
Competition.....*ft. 5 @ 6 ¢*
3-ply Guaranteed..*ft. 8 @ 9 ¢*
4-ply Guaranteed..*ft. 10 @11 ¢*
Cotton Garden, ¾-in., coupled:
Low Grade.....*ft. 8 @ 9 ¢*
Fair Quality.....*ft. 10 @11 ¢*

Irons— Sad—

From 4 to 10.....lb. 3 @3½¢
B. B. Sad Irons.....lb. 3¼@3½¢
Mrs. Potts', cents per set:

Nos.	50	55	60	65
Jap'd Tops	68	65	78	75
Tin'd Tops	71	68	81	78

New England Pressing..lb. 3¾@4¢

Pinking—

Pinking Irons.....doz. 60¢

Irons, Soldering

See *Coppers.*

Jacks, Wagon—

Covert Mfg. Co.:
Auto Screw.....30&2%
Steel.....45%
Covert's Saddlery Works:
Daisy.....60&10%
Victor.....60%
Lockport.....50%
Lane's Steel.....30&10&2%
Richards' Tiger Steel, No. 130...50&10%
Smith & Hemenway Co.'s.....25%

Kettles—

Brass, Spun, Plain.....$0@25%
Enameled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—

Foster Bros.' Butcher, &c.....30%
Wilkinson Shear & Cutlery Co.....50%

Corn—

Withington Acme, ℔ doz., $2.65; Dent, $2.75; Adj. Serrated, $2.20; Serrated, $2.10; Yankee No. 1, $1.80; Yankee No. 2, $1.15.

Drawing—

Standard List.....75@75&10%
C. E. Jennings & Co., Nos. 45, 46...60%
Jennings & Griffin, Nos. 41, 42.....60%
Ohio Tool Co.'s.....70%
Swan's.....75%
Watrous.....16⅔%
L. & I. J. White.....20&5@25%

Hay and Straw—

Serrated Edge, per doz. $5.75@6.00
Iwan's Sickle Edge.....℔ doz. $9.50
Iwan's Serrated.....℔ doz. $10.00

Mincing—

Buffalo.....℔ gro. $13.00

Miscellaneous—

Farriers'.....*doz. $3.00@3.25*
Wostenholm's.....℔ doz. $3.00@3.25

Knobs—

Base, 2½-inch, Birch, or Maple, Rubber Tip.....*gro. $1.25@$1.50*
Carriage, Jap., all sizes.....
gro. 40@45¢
Door, Mineral.....*doz. 65@70¢*
Door, Por. Jap'd.....*doz. 70@75¢*
Door, Por. Nickel..*doz. $2.05@2.15*
Bardsley's Wood Door, Shutters, &c.15%
Picture, Sargent's.....60&10&10%

Lacing, Leather—

See *Belting, Leather.*

Ladders, Store, &c.—

Lane's Store.....25%
Myers' Noiseless Store Ladders....50%
Richards Mfg. Co.:
Improved Noiseless, No. 112.....50%
Climax Shelf, No. 113.....50%
Trolley, No. 109.....50%

Ladles, Melting—

L. & G. Mfg. Co. (low list).....25%
P. S. & W.....50%
Reading.....60%
Sargent's.....50&10%

Lanterns—Tubular—

Regular Tubular, No. 0.....
doz. $4.25@4.50
Lift Tubular, No. 0.....
doz. $4.75@5.00
Hinge Tubular, No. 0.....
doz. $4.75@5.00
Other Styles.....40@40&5%

Bull's Eye Police—

No. 1, 2¾-inch.....*$2.75@3.00*
No. 2, 3-inch.....*$3.00@3.25*

Lasts and Stands, Shoe—

Stowell's Atlas, Malleable Iron....50%
Stowell's Badger, Cast Iron.....50%

Latches— Thumb—

Roggin's Latches, with screw..
doz. 35@40¢

Door—

Cronk & Carrier Mfg. Co., No. 101, ℔ doz. $2.00
Cronk & Carrier Mfg. Co., Latch, Hasp and Staples.....50%
Richards' Bull Dog, Heavy, No. 125.....50&5%
Richards' Trump, No. 127.....$1.50

Leaders, Cattle—

Small.....*doz. 50¢; large, 60¢*
Covert Mfg. Co.:
Cotton, Hemp and Jute, 45%; Sisal, 33⅓%.

Lifters, Transom—

R. & E.....33⅓%

Lines—

Wire Clothes, Nos.	*18*	*19*	*20*
100 feet	*$2.25*	*2.00*	*1.75*
75 feet	*$1.75*	*1.35*	*1.10*

Anniston Waterproof Clothes, 50 ft., ℔ gro., $25.00; Gilt Edge, $23.00; Air Line, $23.00; Acme, $18.00; Alabama, $17.00; Empire, $16.00; Advance, $14.00; Eclipse, $13.50; Chicago, $11.50; Standard, $10.50; Columbia, $9.50; Allston, $13.50; Calhoun, $12.00.
Samson Cordage Works:
Solid Braided Chalk, Nos. 0 to 3..40%
Silver Lake Braided Chalk, No. 0, $6.00; No. 1, $6.50; No. 2, $7.00; No. 3, $7.50.....℔ gr. 20%
Masons' Lines, Shade Cord, &c.:
White Cotton, No. 3½, $1.50; No. 4, $2.00; No. 4½, $2.50; Colors, No. 3½, $1.75; No. 4, $2.25; No. 4½, $2.75; Linen, No. 3½, $2.50; No. 4, $3.50; No. 4½, $4.50.....30%
Tent and Awning Lines: No. 5, White Cotton, $7.50; Drab Cotton, $8.50.....20%
Clothes Lines, White Cotton: 50 ft., $2.75; 60 ft., $3.25; 70 ft., $3.75; 75 ft., $4.00; 80 ft., $4.25; 90 ft., $4.75; 100 ft., $5.25.....20%

Locks— Cabinet—

Cabinet Locks...33⅓@33⅓&7½%

Door Locks, Latches, &c.—

NOTE.—Net Prices are very often made on these goods.
Reading Hardware Co.....40%
R. & E. Mfg. Co.....40%
Sargent & Co.....40&10%
Stowell's Steel Door Latches.....50%

Elevator—

Stowell's.....50%

Padlocks—

Wrought Iron....75&10&5@80&5%
Net prices are general.
R. & E. Mfg. Co. Wrought Steel and Brass.....75&10%

Sash, &c.—

Ives' Patent:
Bronze and Brass.....62½%
Crescent.....50&10%
Iron.....62½%
Window Ventilating.....60%
Robison Patent Ventilating Sash Lock.....40%
Wrought Bronze and Brass.....55%
Wrought Steel.....55%
Pullman Patent Ventilating Lock..25%
Reading.....40%

Machines—Boring—

Com. Upr't, without Augers.$2.00
Com. Ang'l'r, without Augers.$2.25
Swan's Improved.....40&10%
Angular
Jennings' Nos. 1 and 4.....35&5%
Millers' Falls.....5.75
Snell's, Rice's Pat. 2.50 2.75

Corking—

Reisinger Invincible Hand Power....
℔ doz. $48.00

Fence—

Williams' Fence Machines....each, $5.50

Hoisting—

Moore's Anti-Friction Differential Pulley Block.....30%
Moore's Hand Hoist, with Lock Brake.....20%

Ice Cutting—

Chandler's.....12½%

Washing—

Boss Washing Machine Co.:	Per doz.
Boss No. 1	$57.00
Boss Rotary	$54.00
Champion Rotary Banner No. 1	$54.00
Standard Champion No. 1	$48.00
Standard Perfection	$36.00
Cimt Square Western	$30.00
Uneeda American, Round	$30.00

Mallets—

Hickory.....45&5@50%
Lignumvitæ.....45&5&5@50%
Tinners' Hickory and Applewood.....*doz. 45&5@50%*

Mangers, Stable—

Swett Iron Works.....50%

Mashers, Vegetable—

Western, W. G. Co., Potato....60&10%

Mats, Door—

Elastic Steel (W. G. Co.), new list.. 50&10%
Keystone Wire Matting Co.:
Keystone.....50%
Ideal.....50%

Mattocks—

See *Picks and Mattocks.*

Milk Cans—See *Cans, Milk.*

Mills, Coffee, &c.—

Enterprise Mfg. Co.....25@30%
National list Jan. 1, 1902.....30%
Parker's Columbia & Victoria.50&10@60%
Parker's Box and Side.....50&10@60%
Swift, Lane Bros. Co.....30%

Mowers, Lawn—

NOTE.—Net prices are generally quoted
Cheapest.....*all sizes, $1.85@2.00*
Cheap.....*all sizes, $2.00@2.50*
Better Grade..*all sizes, $2.50@4.50*

	12	*14*	*16*	*18-in.*
High Grade	*$4.50*	*4.75*	*5.00*	*5.25*
Continental				60&5%
Great American				70%
Great American Ball Br'g, new list				70%
Quaker City				70%
Pennsylvania				60&5%
Pennsylvania, Jr. Ball Bearing				60%
Pennsylvania Golf				50%
Pennsylvania Horse				33⅓&5%
Pennsylvania Pony				40&5%

Granite State:
Style A, Low Wheel....70&10&10&5%
Style B, Low Wheel.....70&10&5%
Style C, High Wheel.....70&10%
Style D, High Wheel.....70%
Philadelphia:
Styles M., S., C., K., T.....70&5%
Style A, all Steel.....60&5%
Style E, High Wheel.....70&10&5%
Drexel and Gold Coin, special list.50%

Nails—

Wire Nails and Brads, Papered. List July 20, 1899..85&5&10&5%
Cut and Wire. See *Trade Report.*
Hungarian, Finishing, Upholsterers' &c. See *Tacks.*

Horse—

Nos.	6	7	8	9	10	
Anchor	23	21	20	19	18	...40&5%
Champlain	28	26	25	24	23	...50%
Coleman	13	12	12	11	11	...net
New Haven	23	21	20	19	18	...40&5%
Putnam	23	21	20	19	18	...33⅓%
New Putnam	19	18	17	16	16	..10&10%
Western						℔ lb 8¼¢

Jobbers' Special Brands.....
per lb. 9@10¢

Picture—

	¼	*⅜*	*2¼*	*⅜*	*3 3½ in.*
Brass H'd.	*45*	*55*	*60*	*70*	*.. gro*
Por. Head	*1.10*	*1.10*	*1.10*		*.. gro*

Nippers—

See *Pliers and Nippers.*

Nuts—

Cold Punched: *Off list.*
Mfrs. or U. S. Standard.
Square, Blank or Tapped..$4.90
Hexagon, Blank or Tapped.$5.30
Square, Blank, C. & T.....$5.20
Hexagon, Blank, C. & T...$5.90
Hot Pressed:
Mfrs., U. S. or Nar. Gauge Stan'd.
Square, Blank.....$5 30
Hexagon, Blank.....$5.20
Square, Tapped.....$5.20
Hexagon, Tapped.....$5.70

Oakum—

Best.....lb. 6¼@6½¢
U. S. Navy.....lb. 5¾@6¢
Navy.....lb. 4½@5¢
Plumbers' Spun Oakum...2½@3¢
In carload lots ½¢ lb. off, f.o.b. New York.

Oil Tanks—See *Tanks, Oil.*

Oilers—

Brass and Copper.....50&10%
Tin or Steel.....70@70&5%
Zinc.....70@70&5%
Chase or Paragon:
Brass and Copper.....50&10%
Tin or Steel.....65&10%
Zinc.....65&10%
Malleable, Hammers' Imp'ed, Nos. 11, 12 and 13.....20%
Malleable, Hammers' Old Pattern, Nos. 1, 2 and 3.....50%
American Tube & Stamping Co.:
Spring Bottom Cans.....70@70&10%
Railroad Oilers, &c.....60@60&10%

Openers— Can— *Per doz.*

Sprague, Iron Handle....30@35¢
Sprague, Wood Handle...35@40¢
Sardine Scissors.....*$1.75@$3.00*
National.....50&10%
Stowell's Sprague.....℔ doz. 35@45¢
Vim Tin Shear and Can Opener, ℔ doz., 75c.; per gro., $7.50

Egg—

Nickel Plate.....℔ doz., $2.00
Silver Plate.....℔ doz., $4.00

Packing—

Asbestos Packing, Wick and Rope.....lb. 15&20¢

Rubber—

(Fair quality goods.)
Sheet, C. I.....11@12¢
Sheet, C. O. S.....11@12¢
Sheet, C. B. S.....12@13¢
Sheet, Pure Gum.....40@45¢
Sheet, Red.....40@50¢
Jenkins' '96, ℔ lb 80¢.....25@25&5%

Miscellaneous—

American Packing...lb. 7@10 ¢
Cotton Packing.....lb. 16@25 ¢
Italian Packing.....lb. 9@12½¢
Jute.....lb. 4@ 4½¢
Russia Packing.....lb. 8@11 ¢

Pails, Creamery—

R. M. Co., with gauges—No. 1, $6.25; No. 2, $6.50 ℔ doz.

Pails, Water, Well, &c.—

See *Buckets.*

Pans— Dripping—

Standard List.....65&10%

Fry—

Common Lipped:

Nos.	*1*	*2*	*3*	*4*	*5*
Per doz.	*$0.75*	*0.80*	*0.90*	*1.10*	*1.30*

Refrigerator, Galva.—

Inch	*12*	*14*	*16*	*18*
Per doz	*$1.95*	*2.25*	*2.80*	*3.15*

Roasting and Baking—

Regal, R, M, Co., ℔ doz., Nos. 5, $1.50; 10, $5.25; 20, $5.75; 30, $6.25.
Savory, ℔ doz., net, Nos. 200, $9.00; 400, $15.00.
Simplex, ℔ gro.:

No.	40	50	60	140	150	160
$30.00	35.90	42.00	34.00	39.00	46.00	

Paper—Building Paper

Asbestos:	*lb.*	
Roll Board or Building Felt, 6 to 30 lb., per 100 sq. ft.	*6¢*	*1 1-2¢*
Roll Board or Building Felt, 3-32 and ⅛ in., 45 to 60 lbs., per 100 sq. ft.	*8¢*	
Mill Board, Sheet, 40 x 40 in., 1-32 to ½ in.	*10¢*	

Per roll
Rosin Sized Sheathing: 500 sq. ft. Light weight, 25 lbs. to roll
35@40¢
Medium weight, 30 lbs to roll, 40@45¢
Heavy weight, 40 lbs. to roll..
50@60¢
Black Water Proof Sheathing, 500 sq. ft., 1 ply, 65¢; 2 ply, 85¢; 3 ply, $1.10; 4 ply, $1.25.
Deafening Felt, 9, 6 and 4½ sq. ft. to lb. ton.....*$50.00*
Red Rope Roofing, 250 sq. ft. per roll.....*$1.75*

Tarred Paper—

1 ply (roll 500 sq. ft.). ton....
$32.50@35.50
2 ply, roll 108 sq. ft.....*55¢*
3 ply, roll 108 sq. ft.....*75¢*
Slater's Felt (roll 500 sq. ft.)..*75¢*
R. R. M. Stone Surfaced Roofing (roll 110 sq. ft.).....$2.75

Sand and Emery—

Flint Paper and Cloth..60@50&10%
Garnet Paper and Cloth....95%
Emery Paper and Cl'h.60@60&10%

Parers— Apple—

Advance	℔ doz. $4.00
Baldwin	℔ doz. $4.00
Bonanza Improved	each $6.50
Daisy	℔ doz. $4.00
Dandy	each $7.50

Eureka Improved.....each $20.00
Family Bay State.....⅌ doz. $15.00
Improved Bay State.....⅌ doz. $36.00
Little Star.....⅌ doz. $5.00
New Lightning.....⅌ doz. $7.00
Reading 72.....⅌ doz. $3.25
Reading 78.....⅌ doz. $6.25
Rocking Table.....⅌ doz. $6.20
Turn Table '98.....⅌ doz. $6.00
White Mountain.....⅌ doz. $5.00

Potato—

Saratoga.....⅌ doz. $7.00
White Mountain.....⅌ doz. $6.00

Picks and Mattocks—

List Feb. 23, 1899.....75%
Cronk's Handled Garden Mattock, ⅌ doz., $6.40.....33⅓%

Pinking Irons—

See *Irons, Pinking.*

Pins, Escutcheon—

Brass.....60@60&10%
Iron, list Nov. 11, '85..60@60&10%

Pipe, Cast Iron Soil—

Carload lots.

Standard, 2-6 in.....60%
Extra Heavy, 2-6 in.....70%
Fittings.....75%

Pipe, Merchant—

Consumers, Carloads.

	Steel.		*Iron.*	
	Blk.	*Galv.*	*Blk.*	*Galv.*
¼ & ⅜ in.	71%	55%	68%	52 %
½ in.	72½	59%	70%	56 %
¾ in.	75	63%	72½	60 %
1 to 2 in.	79%	69%	76½%	66½%
3 to 6 in.	79%	69%	76½%	66½%
7 to 12 in.	74½	59%	71½%	56 %

Pipe, Vitrified Sewer—

Carload lots.

Standard Pipe and Fittings, 2 to 24 in.:
New England.....68%
New York and New Jersey.71%
*Maryland, Delaware, E. Pa.*75%
W. Pa. and West Va.....77½%
Virginia.....76%
Ohio, Michigan and Ky.....77½%
Indiana.....77½%
NOTE.—Carload lots are generally delivered.

Pipe, Stove—

Edwards' Nested Stove Pipe:	C. L.	L. C. L.
5 in., per 100 joints	$7.00	$8.00
6 in., per 100 joints	7.50	8.50
7 in., per 100 joints	8.50	9.50

Planes and Plane Irons—

Wood Planes—

Bench, first qual.....40&10%
Bench, Second qual.....50&10%
Molding.....33⅓&10%
Bailey's (Stanley R. & L. Co.).....40%
Chapin-Stephens Co.:
Bench, First Quality.....40@40&10%
Bench, Second Quality.....50@50&10%
Molding.....33⅓@33⅓&10%
Toy and German.....40@40&10%
Chaplin's.....60%
Ohio Tool Co.:
Bench, First Quality.....40@40&10%
Bench, Second Quality.....50@50&10%
Molding.....33⅓@33⅓&10%
Adjustable Wood Bottom.....60%
Unicu.....60%

Iron Planes—

Bailey's (Stanley R. & L. Co.).....40%
Chaplin's Iron Planes.....50&10%
Miscellaneous Planes (Stanley R. & L. Co.).....55%
Ohio Tool Co.'s Iron Planes.....60%
Sargent's.....60&10%
Union.....60%

Plane Irons—

Wood Bench Plane Irons.....
25&10@30%
Buc Bros.....30%
Chapin-Stephens Co.....30@30&10%
Ohio Tool Co.....30%
Stanley R. & L. Co.....35%
Union.....50%
L. & I. J. White.....20&5@25%

Planters, Corn, Hand—

Kohler's Eclipse.....⅌ doz. $8.50

Plates—

Felloe.....lb. ¼@4¼¢
Self-Sealing Pie Plates (R. M. Co.). ⅌ doz. $2.00.....50%

Pliers and Nippers—

Button Pliers....75&10@75, 10, 5%
Gas Burner, per doz., 5 in., $1.25 @ $1.30; 6 in., $1.45 @ $1.50.
Gas Pipe.. 7 8 10 12-in.
$2.00 $2.25 $3.00 $3.75
Acme Nippers.....50&5%
Cronk & Carrier Mfg. Co.:
American Button.....75&10%
Cronk's.....60%
Stub's Pattern.....50%
Combination and others.....33⅓%
Heller's Farriers' Nippers, Pincers and Tools.....40&10@40&10&10%
The Nettleton Mfg. Co. Reversible Cutting Nippers.....50%
P., S. & W. Tinners' Cutting Nippers.....40%
Wm. Schollhorn Co.:
Bernard.....33⅓%
Elm City.....33⅓%
Lodi.....50%
Paragon.....50%
Swedish Side, End and Diagonal Cutting Pliers.....50%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds.....40%

Plumbs and Levels—

Chapin-Stephens Co.:
Plumbs and Levels.....30@30&10&10%
Chapin's Imp. Brass Cor.40@40&10&10%
Pocket Levels.....30@30&10&10%
Disston's Plumbs and Levels.....70%
Disston's Pocket Levels.....10%
C. E. Jennings & Co.'s Iron.....33⅓%
C. E. Jennings & Co.'s Iron, Adjustable.....40&7½%
Stanley R. & L. Co.....45%
Stanley's Duplex.....35%
Woods' Extension.....33⅓%

Poachers, Egg—

Buffalo Steam Egg Poachers, ⅌ doz., No. 1, $6.00; No. 2, $9.00; No. 3, $9.00; No. 4, $12.00.....50%

Points, Glaziers'—

Bulk and 1-lb. papers,.....lb. 0¢
½-lb. papers.....lb.9@10½¢
¼-lb. papers.....lb.9¼@1.¢

Pokes, Animal—

Ft. Madison Hawkeye.....⅌ doz. $3.25
Ft. Madison Western.....⅌ doz. $4.00

Police Goods—

Manufacturers' Lists...25@25&5%
Tower's.....25%

Polish—Metal, Etc—

Glasbrite, No. 2, 5 lb can (powder), each, $1.25; ⅌ doz., $12.00; No. 2, 10 lb can (cake), each, $2.50; ⅌ doz., $24.00.
Prestoline Liquid, No. 1 (½ pt.). ⅌ doz., $3.00; No. 2 (1 qu.), $9.72....40%
Prestoline Paste.....40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz. boxes, ⅌ doz. 50¢; ⅌ gro. $4.50; ½ lb boxes, ⅌ doz. $1.25; 1 lb boxes, ⅌ doz. $2.25.
U. S. Liquid, 8 oz. cans, ⅌ doz., $1.25; ⅌ gro., $12.00.
Barkeepers' Friend Metal Polish, ⅌ doz., $1.75; ⅌ gro., $18.00.
Wynn's White Silk, ½ pt. cans, ⅌ doz.....$2.00

Stove—

Black Eagle Benzine Paste, 5 lb cans, ⅌ lb 10¢
Black Eagle, Liquid, ½ pt. cans.. ⅌ doz. 75¢
Black Jack Paste, ¾ lb cans, ⅌ gr. $9.00
Black Kid Paste, 5 lb can....each, $0.65
Ladd's Black Beauty Liquid, per 100 tins.....$6.75
Joseph Dixon's, ⅌ gr. $5.75.....10%
Dixon's Plumbago.....⅌ lb 8¢
Fireside.....⅌ gr. $2.50
Gem, ⅌ gr. $4.50.....10%
Japanese.....⅌ gr. $3.50
Jet Black.....⅌ gr. $3.50
Peerless Iron Enamel, 10 oz. cans.. ⅌ doz. $1.50
Wynn's:
Black Silk, 5 lb pail.....each 70¢
Black Silk, ½ lb box.....⅌ doz. $1.00
Black Silk, 5 oz. box.....⅌ doz. $0.75
Black Silk, ½ pt. liq.....⅌ doz. $1.00

Poppers, Corn—

1 qt., Square.....gro. $9.00
1 qt., Round.....gro. $10.00
1½ qt., Square.....gro. $11.00
2 qt., Square.....gro. $13.00

Post Hole and Tree Augers and Diggers—

See also *Diggers, Post Hole, &c.*

Posts, Steel—

Steel Fence Posts, each, 5 ft., 42¢; 6 ft., 46¢; 6½ ft., 48¢.
Steel Hitching Posts.....each $1.30

Potato Parers—

See *Parers, Potato.*

Pots, Glue—

Enameled.....40%
Tinned.....35%

Powder—

In Canisters:
Duck, 1 lb.....each 45¢
Fine Sporting, 1 lb....each 75¢
Rifle, ½-lb.....each 15¢
Rifle, 1-lb.....each 25¢
In Kegs:
12½-lb. kegs.....$3.50
25-lb. kegs.....$4.50
King's Semi-Smokeless:
Keg (25 lb bulk).....$6.50
Half Keg (12½ lb bulk).....$3.50
Quarter Keg (6¼ lb bulk).....$1.90
Case 24 (1 lb cans bulk).....$8.50
Half case (1 lb cans bulk).....$4.50

King's Smokeless:	Shot Gun.	Rifle.
Keg (25 lb bulk)	$12.00	$15.00
Half Keg (12½ lb bulk)	6.25	7.75
Quarter Keg (6¼ lb bulk)	3.25	4.00
Case 24 (1 lb cans bulk)	14.00	17.00
Half case 12 (1 lb c. bk)	7.25	8.75

Robin Hood Sm'less Shot Gun..50&20%

Presses—

Fruit and Jelly—

Enterprise Mfg. Co.....20@25%

Seal Presses—

Morrill's No. 1, ⅌ doz., $20.00.....50%

Pruning Hooks and Shears

See *Shears.*

Pullers, Cork—

Invincible Cork Puller.....$21.00

Pullers, Nail—

Cyclops.....50%
Miller's Falls, No. 3, ⅌ doz., $12.00.. 33⅓&10%
Morrill's No. 1, Nail Puller, ⅌ doz. $20.00.....50%
Pearson No. 1, Cyclone Spike Puller, each $30.00.....50%
Scranton, Case Lots:
No. 2B (large).....$5.50
No. 3B (small).....$5.00
Smith & Hemenway Co.:
Diamond B, No. 2, case lots..... ⅌ doz. $6.00
Diamond B, No. 3, case lots..... ⅌ doz. $5.50
Giant No. 1, ⅌ doz. $18; No. 2, $16.50; No. 3, $15.....33⅓%
Staple Pullers.....60%
Parrot Tack and Stub Puller, ⅌ doz., 75c.: ⅌ gro., $6.00

Pulleys, Single Wheel—

Inch	*1½*	*1¾*	*2*	*3*
Awning or Tackle, doz.	*$0.30*	*.35*	*.60*	*1.05*
Hay Fork, Swivel or Solid Eye. doz., 4 in., $1.25; 5 in., $1.55				
Inch	*2*	*2¼*	*2½*	
Hot House, doz.	*$0.65*	*.85*	*1.20*	
Inch	*1¼*	*1½*	*1¾*	*2*
Screw, doz.	*$0.16*	*.19*	*.23*	*.30*
Inch	*1¾*	*2*	*2¼*	*2½*
Side, doz.	*$0.25*	*.40*	*.55*	*.60*
Inch	*1½*	*1¾*	*2*	*2½*

Stowell's:
Ceiling or End, Anti-Friction..60&10%
Dumb Waiter, Anti-Friction..60&10%
Electric Light.....60%
Side, Anti-Friction.....60&10%

Sash Pulleys—

Common Frame; Square or Round End, per doz, 1¾ and 2 in.....16@19¢
Auger Mortise, no Face Plate, per doz., 1¾ and 2 in..16@19¢
Acme.....1¾ in., 16¢; 2 in., 19¢
Fox-All-Steel, Nos. 3 and 7, 2 in.... ⅌ doz. 50%
Grand Rapids All Steel Noiseless..50%
Ideal.....70&10%
Niagara.....1¾ in., 16¢; 2 in., 19¢
No. 26, Troy..1¾ in., 14½¢; 2 in., 16½¢
Star.....1¾ in., 16¢; 2 in., 19¢
Tackle Blocks—See Blocks.

Pumps—

Cistern.....60@60&10%
Pitcher Spout.....60@80&10%
Wood Pumps, Tubing, &c.45@50%
Barnes Dbl. Acting (low list).....50%
Barnes' Pitcher Spout.....75&10&5%
Contractors' Rubber Diaphragm No. 2, B. & L. Block Co.....$16.00
Daisy Spray Pump.....⅌ doz. $6.75
Flint & Walling's, Fast Mail Hand, (low list).....55%
Flint & Walling's Fast Mail (low list).....55&5%
Flint & Walling's Tight Top Pitcher.80%
National Specialty Mfg. Co., Measuring, $6.00.....30%
Mechanical Sprayer.....$6.00
Myers' Pumps (low list).....50%
Myers' Power Pumps.....50%
Myers' Spray Pumps.....50&10%

Pump Leathers—

Plunger and Lower Valve—Per gro.:

Inch...	*2*	*2¼*	*2½*	*2¾*
	$2.20	*2.50*	*2.75*	*3.00*
Inch...	*3*	*3¼*	*3½*	*3¾*	*4*
	$3.30	*3.60*	*3.85*	*4.10*	*4.40*

Plunger Cup Leathers—Per 100:

Inch...	*2½*	*3*	*3½*	*4*
	$2.75	*3.85*	*5.00*	*6.00*

Punches—

Saddlers' or Drive, good..... *doz. 50@75¢*
Spring, single tube, good quality.....*$1.75@2.00*
Revolving (4 tubes)..... *doz. $3.50@3.75*
Bemis & Call Co.'s Cast St'l Drive.50%
Bemis & Call Co.'s Check.....55%
Morrill's Nos. 1AA, 1A, 1B, 1C, $15.00.....50%
Hercules, 1 die, each $5.00.....50%
Niagara Hollow Punches.....40%
Niagara Solid Punches.....55&10%
Wm. Schollhorn Co.:
Bernard.....33⅓%
Lodi.....50%
Paragon.....50%
Steel screw, B. & K. Mfg. Co.....50%
Tinners' Hollow, P., S. & W. Co...40%
Tinners' Solid, P., S. & W. Co., ⅌ doz., $1.44.....60%

Rail—Barn Door, &c.—

Sliding Door, Painted Iron.... 2½@2¾¢
Sliding Door, Wrought Brass, 1⅛ in., lb., 36¢.....30%
Allith Mfg. Co.:
No. 1, Reliable Hgr. Track, ⅌ ft. 5½¢
No. 2, Reliable Hgr. Track, ⅌ ft. 7¢
Cronk's:
Double Braced Steel Rail..⅌ ft. 2¾¢
O. N. T. Rail.....2½¢
Griffin's:
xxx, ⅌ 100 ft., 1 x 3-16 in., $3.00; 1¼ x 3-16 in., 3.50.
Hinged Hanger, ⅌ 100 ft., 1 x 3-16 in., $3.10; 1¼ x 3-16 in., $3.60.
Lane's:
Hinged Track, ⅌ 100 ft., 1 in., $3.40; 1¼ in., $4.10.
O. N. T., ⅌ 100 ft., 1 in., $2.75; 1¼ in., $3.50; 1½ in., $4.00.
Standard, 1¼ in.....⅌ 100 ft. $4.00
Lawrence Bros.:
⅌ 100 ft., No. 201, $4.00; No. 202, $4.00
New York, 1 x 3-16 in., ⅌ 100 ft. $2.75
McKinney's:
Hinged Hanger Rail, ⅌ ft., 11¢..50%
None Better.....⅌ ft. 3¾¢
Standard.....⅌ ft. 4¢
Myers' Stayon Track.....60&10%
Richards' Mfg. Co.:
Common 1 x 3-6 in., $2.25; 1⅛ x 3-16, $2.50; 1¼ x 3-16, $2.75.
Special Hinged Hanger Rail...60&10%
Lag Screw Rail, No. 65.....50%
Gauge Trolley Track, ⅌ ft., No. 31, 9¢; No. 32, 14¢; No. 33, 20¢.
Safety Door Hanger Co.'s Storm King Safety.....60%
Safety Door Hanger Co.'s U. S. Standard.....60%
Stowell's:
Cast Rail.....⅌ ft. 1¾¢
Steel Rail, Plain.....25%
Wrought Bracket, 1 3-16 in....⅌ ft. 3¢
Wrought Bracket, 1⅛ x 5-16..⅌ ft. 7¢
Swett's Hylo, ⅌ ft. 11¢.....60%
P. L. B. Steel Rail.....⅌ 100 ft. $3.00
No. 0, 1 x 3-16.....⅌ 100 ft. $2.75

Rakes—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.
Fort Madison Red Head Lawn....$3.25
Fort Madison Blue Head Lawn....$2.70
Jackson Lawn, 29 and 30 teeth, ⅌ doz., net.....$4.25
Cronk's:
New Champion Garden, ⅌ doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00..75%
Victor Garden, ⅌ doz., 12 teeth, $15.00; 14, $16.50; 16, $18.00.....80%
Queen City Lawn, ⅌ doz., 29 teeth, $3.45; 24, $3.60.....net.
Anticlog Lawn, ⅌ doz.....$4.00
Malleable Garden.....70&10%
Kohler's:
Lawn Queen, 20-tooth.....⅌ doz. $3.45
Lawn Queen, 24-tooth.....⅌ doz. $3.60
Paragon, 20-tooth.....⅌ doz. $2.75
Paragon, 24-tooth.....⅌ doz. $3.00
Steel Garden, 14-tooth....⅌ doz. $2.40
Malleable Garden, 14-tooth, ⅌ doz. $1.75@2.00
Weldless Steel Garden.....75&5%

Rasps, Horse—

Disston's.....75%
Heller Bros.'.....70&5@70&10&5%
McCaffrey's American St'd...60&10&5%
New Nicholson.....70&10@75%
See also Files.

Razors—

Boras—I C.....60%
Fox Razors, No. 42..⅌ doz. $20.00
Fox Razors, No. 44..⅌ doz. $20.00
Fox Razors, No. 82, Platina... ⅌ doz. $25.00
Red Devil.....50%
Silberstein:
Carbo Magnetic.....$18.00
Griffon, No. 65.....$15.00
Griffon, No. 00.....$12.00
All other Razors.....40%

Safety Razors—

Kampfe Bros.:
Star Safety.....25%
Star Interchangeable.....25%
Star Safety Corn.....25%
Silberstein.....40%

Reels, Fishing—

Hendryx:
M 6, Q 6, A 6, B 6, M 9¼, M 16, Q 16, A 16, B 16, 4008, Rubber, Populo, Nickeled Populo.....20%
Aluminum, German Silv., Bronze.25%
1240 N, 124 N.....20%
3004 N, 06 N, 6 RM, G 9.....25%
4 N, 6 PN, 24 N, 26 PN.....25%
2904 P.....33⅓%
2904 PN.....33⅓%
0924 N.....33⅓%
02084 N.....33⅓%
002904 PN.....33⅓%
802 N.....33⅓%
986 PN, 2904 N, 974 PN.....25%
5009 PN, 5009 N.....20%
Competitor, 102 P, 102 PN, 202 P, 202 PN, 102 PR, 202 PR.....20%
304 P, 304 PN, 00304 P, 00304 PN.33⅓%

Registers—*List July 1, 1903.*

Japanned, Electroplated and Bronzed.....70&10%

Revolvers—

Single Action.....95¢@$1.00
Double Action, except 44 cal.$1.85
Double Action, 44 caliber....$2.00
Automatic.....$3.45
Hammerless.....$4.00

Riddles, Hardware Grade

16 in.....*per doz.$2.50@$2.75*
17 in.....*per doz.$2.75@$3.00*
18 in.....*per doz.$3.00@$3.25*

Rings and Ringers—

Bull Rings—

	2	*2½*	*3 inch.*
Steel	*$0.70*	*0.75*	*0.80 doz.*
Copper	*$1.00*	*1.15*	*1.40 doz.*

Rea's Improved Self-Piercing, Copper, 2 in., ⅌ doz., $1.25; 2½ in., $1.50; 3 in. $1.75.

Hog Rings and Ringers—

Hill's Rings, gro. boxes.$4.00@4.50
Hill's Ringers, Gray Iron..... *doz. 50@55¢*
Hill's Ringers, Malleable Iron.. *doz. 70@75¢*
Blair's Rings...per gro.$4.75@5.25
Blair's Ringers.per doz. $0.60@ .65
Brown's Rings..per gro.$5.00@5.50
Brown's Ringers.per doz.$0.60@ .65

Rivets and Burrs—

Copper.....40¢10@15%
Iron or Steel.....75@75&5%

Bifurcated and Tubular—

Assorted in Boxes.

Bifurcated, per doz. boxes, pasteboard boxes, 23@25¢; Tin boxes, 29@32¢.
Tubular, per doz. boxes, 50 count, 29@32¢; 100 count, 51@58¢.

Rollers—

Acme, Stowell's Anti-Friction.....50%
Barn Door, Sargent's list.....60%
Cronk's Stay No. 65, $0.90; No. 50.....$1.00
Cronk's Brinkerhoff No. 55, $0.60; No. 56.....$0.84
Lane's Stay.....40%
Richards' Stay:
Handy Adj. and Reversible No. 53.75¢
O. K. Adj. and Reversible No. 58.50¢
Lag Screw, Nos. 55 and 57.....50%
Underwriters', Nos. 59, 60.....50%
Favorite, No. 54.....60%
Stowell's Barn Door Stay..⅌ doz. $1.00
Swett's Anti-Friction.....50%
Screw and Spike Stay.....⅌ doz. 65¢
Hinge Adjustable Stay.....⅌ doz. 90¢

Rope—

Manila, 7-16 in. diam. and larger:
Pure.....lb., 12½¢
Sisal, 7-16 in. diam. and larger:
Pure.....lb., 10¢
Sisal, 7-16 in. diam. and larger:
No. 2 quality.....lb., 8¢
Sisal, Hay, Hide and Bale Ropes, Medium and Coarse:
Mixed.....lb., 8¢
Pure.....lb. 10¢
Sisal, Tarred, Medium Lath Yarn, Coarse and Untarred:
Mixed.....lb. 8¢
Pure.....lb. 10¢
Cotton Rope:
Best, ¼-in. and larger. 16½@18¢
Medium, ¼-in. and larger, 15½@16½¢
Common, ¼-in. and larger..10¢
In coils, ½¢ advance.
Jute Rope:
Thread No. 1, ¼-in. & up. lb.6½¢
Thread No. 2, ¼-in. & up, lb.5¾¢
Old Colony Manila Transmission Rope.....⅌ lb 17½¢

Wire Rope—

Galvanized.....37½&2½%
Plain.....45&2½%

Ropes, Hammock—

Covert Mfg. Co.:
Jute.....45%
Sisal.....33⅓%
Covert Saddlery Works.....60&5%

Rulers, Desk—
Stimpson & Son.
Boxwood and Maple.....30&10%

Rules
Boxwood .....*60&10&10%*
Ivory .....*35&10@35&10&5%*
Chapin-Stephens Co.:
Boxwood .....60@60&10%
Flexifold .....27½&10&10&2½%
Ivory .....35@35&10&10%
Miscellaneous .....50@50&10&10%
Combination .....55@55&10%
Stationers' .....10@10&10%
Keuffel & Esser Co.:
Folding, Wood.....35&10%
Folding, Steel.....33⅓&10%
Lufkin's Steel.....50&10%
Lufkin's Lumber.....60%
Stanley R. & L. Co.:
Boxwood 62½%
Ivory 45%
Miscellaneous 60%
Zig Zag.....40%
Zig Zag, Pin Joint.....42½%
Upson Nut Co.:
Boxwood .....60@60&10%
Ivory .....35&10@35&10&10%

Sash Balances—
See *Balance, Sash.*

Sash Locks—
See *Locks, Sash.*

Sash Weights—
See *Weights, Sash.*

Sausage Stuffers or Fillers
See *Stuffers or Fillers, Sausage.*

Saw Frames—
See *Frames, Saw.*

Saw Sets—See *Sets, Saw.*

Saw Tools—See *Tools, Saw.*

Saws—
Atkins':
Circular 50%
Band .....50&10@60%
Cross Cuts.....35&5%
Mulay, Mill and Drag.....50%
One-Man Saw.....40%
Wood Saws.....40%
Hand, Compass, &c.....40%
Chapin-Stephens Co.:
Turning Saws and Frames..30@30&10%
Diamond Saw & Stamping Works:
Sterling Kitchen Saws.....30&10&10%
Disston's:
Circular, Solid and Ins'ted Tooth.50%
Band, 2 to 14 in. wide.....60%
Band, ⅛ to 1⅜.....60%
Crosscuts 50%
Narrow Crosscuts.....55%
Mulay, Mill and Drag.....50%
Framed Woodsaws.....35%
Woodsaw Blades.....35%
Woodsaw Rods.....25%
Hand Saws, Nos. 12, 99, 9, 16, d100, D8, 120, 76, 77, 8.....25%
Hand Saws, Nos. 7, 107, 107½, 3, 1, 0, 00, Combination.....30%
Compass, Key Hole, &c.....25%
Butcher Saws and Blades.....35%
C. E. Jennings & Co.'s:
Back Saws.....25%
Butcher Saws.....30%
Compass and Key Hole Saws..35&5%
Framed Wood Saws.....30%
Hand Saws.....20&2½%
Wood Saw Blades.....35%
Millers Falls:
Butcher Saws.....15&10%
Star Saw Blades.....15&10%
Peace & Richardson's Hand Saws...30%
Simonds':
Circular Saws.....50%
Crescent Ground Cross Cut Saws..35%
One-Man Cross Cuts.....40&10%
Gang Mill, Mulay and Drag Saws.50%
Band Saws.....50%
Back Saws.....25@25&7½%
Butcher Saws.....35@35&7½%
Hand Saws.....25@25&7½%
Hand Saws, Bay State Brand.....40%
Compass, Key Hole, &c..25@25&7½%
Wood Saws.....35@35&7½%
Springfield Mach. Screw Co.:
Diamond Kitchen Saws....40&10@50%
Butcher Saws Blades.....35@40%
Wheeler, Madden & Clemson Mfg. Co.'s Cross Cut Saws.....50%

Hack Saws—
Atkins' Hack Saw Blades A A A..25%
Disston's:
Concave Blades.....25%
Keystone 40%
Hack Saw Frames.....30%
Fitchburg File Works, The Best...35%
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180.... 40&7½%
Hack Saws, Nos. 175, 180, complete, 40&7½%
Goodell's Hack Saw Blades.....40%
Griffin's Hack Saw Frames..35&5&10%
Griffin's Hack Saw Blades....35&5&10%
Springfield Mach. Screw Co.:
Diamond Hack Saw Blades.....35%
Diamond Hack Saw Frames.....50%
Star Hack Saws and Blades.....15&10%
Sterling Hack Saw Blades....30&10&5%
Sterling Hack Saw Frames...30&10&10%
Sterling Power Hack Saw Machines, each, No. 1, $25.00; No. 2, $30.00..10%
Victor Hack Saw Blades.....25%
Victor Hack Saw Frames.....40%

Scroll—
Barnes' No. 7, $15.....25%
Barnes' Scroll Saw Blades.....40%
Barnes' Velocipede Power Scroll Saw, without boring attachment, $18; with boring attachment, $20.....20%
Lester, complete, $10.00.....15&10%
Rogers, complete, $4.00.....15&10%

Scalers, Fish—
Covert's Saddlery Works.....60&10%

Scales—
Family, Turnbull's....50@50&10%
Counter:
Hatch, Platform, ½ oz. to ¼ lbs. .....doz. $5.50
Two Platforms, ½ oz. to 8 lbs. .....doz. $16.00
Union Platform, Plain.$1.70@1.90
Union Platform, Stpd.$1.85@2.15
Chatillon's:
Eureka 25%
Favorite 40%
Crocers' Trip Scales.....50%
Chicago Scale Co.:
The "Little Detective"....25 lbs 50%
Union or Family No. 2.....60%
Portable Platform (reduced list)..50%
Wagon or Stock (reduced list).25@35%
"The Standard" Portables.....50%
"The Standard" R. R. and Wagon.50%

Scrapers—
Box, 1 Handle.....doz. $2.00@2.25
Box, 2 Handle.....doz. $2.60@2.85
Ship....Light, $2.00; Heavy, $4.50
Adjustable Box Scraper (S. R. & L. Co.), $6.00.....45%
Chapin-Stephens Co., Box, 30@30&10&10%

Screens, Window and Frames—
Maine Screen Frames.....40&10&5%
See also *Doors.*

Screws—Bench and Hand
Bench, Iron, doz., 1 in., $2.50@2.75; 1⅛, $3.00@3.25; 1¼ .$3.50@3.75
Bench, W'd, Beech.doz. 30@30&5%
Hand, Wood.....30@30&5%
R. Bliss Mfg. Co., Hand....30@30&10%
Chapin-Stephens Co., Hand..30@30&10%
Ohio Tool Co., Bench and Hand..30%

Coach, Lag and Hand Rail—
Lag, Cone Point, list Oct. 1, '99 .....75&15%
Coach, Gimlet Point, list Oct. 1, '99.....75&10%
Hand Rail, list Jan. 1, '81.... 70&10@75%

Jack Screws—
Standard List.....80@80&5%
Millers Falls.....50&10&10%
Millers Falls, Roller.....50&10%
P., S. & W.....50%
Sargent .....70&10%
Swett Iron Works.....75&10@80&5%

Machine—
List Jan. 1, '98:
Flat or Round Head, Iron.... 50@50&10%
Flat or Round Head, Brass.... 50@50&10%

Set and Cap—
Set (Iron).....80%
Set (Steel), net advance over Iron 25%
Sq. Hd. Cap.....75%
Hex. Hd. Cap.....75%
Rd. Hd. Cap.....60&10%
Fillister Hd. Cap.....60&10&10%

Wood—
List July 23, 1903.
Flat Head, Iron.....87½&10@..%
Round Head, Iron...85 &10@..%
Flat Head, Brass...85 &10@..%
Round Head, Brass..80 &10@..%
Flat Head, Bronze..77½&10@..%
Round Head, Bronze.75 &10@..%
Drive Screws.....87½&10%

Scroll Saws—
See *Saws, Scroll.*

Scythes—
	Per doz.
Grass, No. 1, Plain Finish	*$6.25*
Clipper, Bronzed Webb	*$6.50*
No. 3 Clipper, Pol'd Webb	*$6.75*
No. 6 Clipper & Solid Steel	*$7.00*
Bush, Weed & Bramble, No. 2	*$6.50*
Grain, No. 1	*$8.25*
Bronzed Webb, No. 1	*$8.50*
Nos. 3 & 4 Clipper, Grain	*$8.75*
Solid Steel No. 6	*$9.25*

Seeders, Raisin—
Enterprise .....25@30%

Sets—Awl and Tool—
Aiken's Sets, Awl and Tools:
No. 20, ℔ doz., $10.00.....60&10%
Fray's Adj. Tool Handles, Nos. 1, $12; 2, $18; 3, $12; 4, $9; 5, $7.....50%
C. E. Jennings & Co.'s Model Tool Holders 30%
Millers Falls Adj. Tool Handles, No. 1, $12; No. 4, $12; No. 5, $18....15&10%

Garden Tool Sets—
Ft. Madison Three Plows, Hoe, Rake and Shovel.....℔ doz sets $9.00

Sets, Nail—
Octagon .....gro. $3.50@3.75
Buck Bros.....27½%
Cannon's Diamond Point, ℔ gro.$12.40%
Mayhew's .....℔ gro. $9.00
Snell's Cor'gated, Cup Pt....℔ gro. $7.20
Snell's Knurled, Cup Pt....℔ gro. $7.20
Springfield Mach. Screw Co.:
Diamond Knurled Cup Pt.℔ gro. $7.50

Rivet—
Regular list.....75@75&10%

Saw—
Aiken's:
Genuine .....50&10%
Imitation .....50&10%
Atkin's:
Criterion 40%
Adjustable 40%
Bemis & Call Co.'s:
Cross Cut.....30%
Plate 20%
Disston's Star and Monarch.....25%
Morrill's. No. 1, $15.00.....50%
Nos. 3 and 4, Cross Cut, $20.00...50%
No. 5, Mill, $30.00.....50%
Nos. 10, 11, 95, $15.60.....50%
No. 1 Old Style, $10.00.....50%
Special, $16.25.....50%
Giant Royal Cross Cut.....℔ doz. $8.00
Royal, Hand.....℔ doz. $4.50
Taintor Positive.....℔ doz. $5.75

Shaving
Fox Shaving Sets, No. 30 ..... ℔ doz.. net, $24.00
Smith & Hemenway Co.'s.....60%

Sharpeners, Knife—
Chicago Wheel & Mfg. Co.....70%
Pike Mfg. Co.:
Fast Cut Pocket Knife Hones, ℔ doz.....$1.50
Mounted Kitchen Sand Stone, ℔ doz.....$1.50
Natural Grit Carving Knife Hones, ℔ doz.....$3.00
Quick Cut Emery Carving Knife Hones, ℔ doz.....$1.50
Quick Edge Pocket Knife Hones, ℔ doz.....$2.50
} 40%

Skate—
Smith & Hemenway Co.....20%

Shaves, Spoke—
Iron .....doz.$1.10@1.25
Wood .....doz.$1.75@2.25
Bailey's (Stanley R. & L. Co.)...45%
Razor Edge (Stanley R. & L. Co.)..35%
Chapin-Stephens Co.....30@30&10&10%
Goodell's, ℔ doz. $9.00.....15&10%
Wood's F1 and F2.....50%

Shears—
Cast Iron..	*7*	*8*	*9 in.*
Best	*$16.00*	*18.00*	*20.00 gro.*
Good	*$13.00*	*15.00*	*17.00 gro.*
Cheap	*$5.00*	*6.00*	*7.00 gro.*

Straight Trimmers, &c.:
Best quality Jap....70@70&10%
Best quality, Nickel..60@60&10%
Fair quality, Jap....80@80&5%
Fail quality, Nickel..75@75&10%
Tailors' Shears.....40@40&10%
Acme Cast Shears.....40@40&5%
Heinisch's Tailor's Shears.....10%
Wilkinson's Sheep, 1900 list.....50&10%

Tinners' Snips—
Steel Blades.....20&5@20&10%
Steel Laid Blades.....40&10@50%
Forged Handles, Steel Blades, Berlin, 50@50&5%
Heinisch's Snips.....40%
Jennings & Griffin Mfg. Co.'s. 6½ to 10 in.....50%
Niagara Snips.....40%
P., S. & W. Forged Handles.....20%

Pruning Shears—
Cronk's Hand Shears.....33⅓%
Cronk's Wood Handle Shears.....33⅓%
Disston's Combined Pruning Hook and Saw, ℔ doz. $18.00.....25%
Disston's Pruning Hook, ℔ doz. $12.00 .....25%
John T. Henry Mfg. Co.:
Pruning Shears, all grades....50&10%
P., S. & W. Co.....33⅓%
Wilkinson's Hedge, 1900 list.....50&10%
Wilkinson's Lawn and Border.....50%

Sheaves—Sliding Door—
Stowell's Anti-Friction.....50%
Patent Roller, Hatfield's, Sargent's list .....70&10%
Reading 40%
R. & E. list.....33⅓%
Wrightsville Hatfield Pattern.....80%

Sliding Shutter—
Reading list.....40%
R. & E. list.....33⅓%
Sargent's list.....10&10%

Shells—Shells, Empty—
Brass Shells, Empty:
Climax, Club, Rival, 10 and 12 gauge.....65&5%
Paper Shells, Empty:
Acme, Ideal, Leader, New Rapid, Magic, 10, 12, 16 and 20 gauge..25&5%
Blue Rival, New Climax, Challenge, Monarch, Defiance, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge 20%
Climax, Union, League, New Rival 10 and 12 gauge.....25%
Climax, Union, League, New Rival, 14, 16 and 20 gauge.....20%
Expert, Metal Lined and Pigeon, 10 12, 16 and 20 gauge.....33⅓
Robin Hood, Low Brass.....20&5%
Robin Hood, High Brass.....30&5%

Shells, Loaded—
Loaded with Black Powder..40%
Loaded with Smokeless Powder, medium grade.....40&5%
Loaded with Smokeless Powder, high grade.....40&10&10%
Robin Hood Smokeless Powder:
Robin Hood, Low Brass.....50%
Comets, High Brass.....50&10&5%

Shoes, Horse, Mule, &c.—
F.o.b. Pittsburgh:
Iron .....per keg $4.00
Steel .....per keg $3.75
Burden's, all sizes.....℔ keg $3.90

Shot—
Drop, up to B, 25-lb. bag....$1.80
Drop, B and larger..... per 25-lb. bag, $2.05
Buck, 25-lb. bag.....$2.05
Chilled, 25-lb. bag.....$2.05

Shovels and Spades—
Association List, Nov. 15, 1902..40%

Snow Shovels—
Long Handle.....$2.75@$3.00
Wood and Mall, D. Handle. $3.25@$3.50

Sieves and Sifters—
Hunter's Imitation..... gro.$9.50@10.00
Hunter's Genuine..... per gro. $12.00@12.50
Buffalo Metall'c Blued, R. M. Co., ℔ gr.
14&16 16&18 18&20
$13.20 $13.50 $14.40
Shaker (Barler's Pat.) Flour Sifters, ℔ doz., $2.00.....20%

Sieves, Seamless Metallic
—Per dozen.—

Mesh	*14*	*16*	*18*	*20*
Iron Wire	*.1.05*	*1.05*	*1.10*	*1.20*
Tinned Wire	*.1.15*	*1.15*	*1.20*	*1.30*

Sieves, Wooden Rim—
Nested, 10, 11 and 12 Inch.
Mesh 18, Nested....doz. $0.90@0.95
Mesh 20, Nested....doz. $1.00@1.05
Mesh 24, Nested....doz. $1.30@1.40

Sinks, Cast Iron—
Painted, Standard list:
12 x 12 to 22 x 36 in....60&5%
20 x 40 to 24 x 50 in.....55%
24 x 60 to 24 x 120 in.....35%
Barnes' low list:
Up to and including 20 x 36 in....60%
20 x 40 to 24 x 50 in.....55%
NOTE.—There is not entire uniformity in lists used by jobbers.

Skeins, Wagon—
Cast Iron.....80@80&10%
Steel .....40@40&10%

Slates, School—
Factory Shipments.
"D" Slates.....50@50&10%
Eureka, Unexcelled Noiseless.. 60&5 tens
Victor A, Noiseless.60&4 tens &5%

Slaw Cutters—See *Cutters.*

Snaps, Harness—
German .....40@40&10%
Covert Mfg. Co.:
Derby .....30&2%
High Grade.....45%
Jockey 35%
Trojan 45%
Yankee .....30&2%
Yankee Roller.....30&2%
Covert's Saddlery Works:
Crown 60%
German 60%
Model 60%
Triumph 60%
Oneida Community:
Harness Snaps, 1 inch.....60&5%
Swivel Snaps.....60%
Swivels 50%
Sargent's Patent Guarded....66⅔&10%

Snaths—
Scythe 50%

Snips, Tinners—See *Shears.*

Spoons and Forks—
Silver Plated—
Good Quality.....50&10@60&5%
Cheap .....60@60&10%
International Silver Co.:
1847 Rogers Bros. and Rogers & Hamilton .....40&10%
Rogers & Bro., William Rogers' Eagle Brand.....50&10%
Anchor, Rogers Brand.....60%
Wm. Rogers & Son.....60&10%

Miscellaneous—
German Silver.....60@60&5%
Cattaraugus Cutlery Co.:
Seneca Silver.....50%

Tinned Iron—
Teas .....per gro. 45@50¢
Tables.....per gro. $0.50@$1.00

Springs—Door—
Chicago (Coil).....40&10%
Gem (Coil).....20%
Pullman (Coil)... .....25%
Reliance (Coil).....40&10%
Star (Coil).....30%
Torrey's Rod, 39 in.....℔ doz. $1.10
Victor (Coil).....50&10&10%

Carriage, Wagon, &c.—
1¼ in. and Wider:	*Per lb.*
Black	*¼@4¼¢*
Half Bright	*¼@4¼¢*
Bright	*4½@4¾¢*

Painted Seat Springs:
1½ x 2 x 26.....per pr. 42¢
1½ x 3 x 28.....per pr. 70¢

Sprinklers, Lawn—
Enterprise .....25@30%
Philadelphia No. 1, ℔ doz. $12; No. 2, $15; No. 3, $24.....30%
Pleuger & Henger Mfg. Co.:
Cactus 70%
Japanese 75%
Nationals 65%

Squares—
Nickel plated..} List Jan. 5, 1900.
Steel and Iron..} 75&10@75&10&5%
Rosewood Hdl. Try Square and T-Bevels .....60&10&10@70%
Iron Hdl. Try Squares and T-Bevels .....40&10@40&10&10%
Disston's Try Sq. and T-Bevels...70%
Winterbottom's Try and Miter, No. 1, 40%; No. 2.....50%

Squeezers, Lemon
Wood, Common, gro., No. 0, $5.25@$5.50; No. 1, $6.25@$6.50.
Wood, Porcelain Lined:
Cheap .....doz. $1.00
Good Grade.....doz. $1.25
Tinned Iron.....doz. $0.75@1.25
Iron, Porcelain Lined...doz. $1.75

Staples—
Barbed Blind.....lb. 6@6½¢
Electricians', Association list.. 80&10&10&10%
Fence Staples, Plain, $2.25; Galvanized $2.55
Poultry Netting Staples..... per lb. 3¼@3½¢
Grand Crossing Tack Co.'s list..80&10%

Steels, Butchers'—
Dick's 30%
Foster Bros.'.....30%
C. & A. Hoffmann's.....40%

Steelyards — ....30@30&10%

Stocks and Dies—
Blacksmiths' .....*50@50&10%*
Curtis Rev'ble Ratchet Die Stock..25%
Derby Screw Plates.....25%
Green River.....25%
Lightning Screw Plate.....25%
Little Giant.....25%
Reece's New Screw Plates.....25%

Stoners, Cherry—
Enterprise .....25@30%

Stones—Oil, &c.
Chicago Wheel & Mfg. Co., 1904 list:
Gem Corundum Oil, Double Grit.60%
Gem Corundum Axe, Single or Double Grit.....60%
Gem Corundum Slips.....60%
Gem Corundum Razor Hones....50%
Pike Mfg. Co., 1904 list: ℔ lb.
Arkansas St. No. 1, 3 to 5½ in.$2.80
Arkansas St. No. 1, 5½ to 8 in.$3.50
Arkansas Slips No. 1.....$4.00
Lily White Washita, 4 to 8 in.60¢
Rosy Red Washita, 4 to 8 in..60¢
Washita St., Extra, 4 to 8 in.50¢
Washita St., No. 1, 4 to 8 in.40¢
Washita St., No. 2, 4 to 8 in.30¢
Lily White Slips.....90¢
Rosy Red Slips.....90¢
Washita Slips, Extra.....80¢
Washita Slips, No. 1.....70¢
Washita Slips, No. 2.....60¢
} 33⅓%
India Oil Stones (entire list)....33⅓%
Quickcut Emery and Corundum Oil Stone, Double Grit.....33⅓%
Quickcut Emery and Corundum Axe Stone, Double Grit.....33⅓%
Quickcut Emery Rubbing Bricks.33⅓%

Hindostan No. 1, R'g'lar, ₱ lb 8¢
Hindostan No. 1, Small, ₱ lb 10¢
Axe Stones (all kinds)
Turkey Oil Stones, Extra, 5 to 8 in., ₱ lb 80¢ } 33⅓%
Queer Creek Stones, 4 to 8 in. 20¢
Queer Creek Slips 40¢
Sand Stone 6¢

Scythe Stones—

Chicago Wheel & Mfg. Co.:
Gem Corundum, 10 in., $8.00 ₱ gro., 12 in., $10.80.
Norton Emery Scythe Stones:
Less than gross lots, ₱ gro. $9.00
One gross or more, ₱ gro. $7.20
Lots of 10 gross or more, ₱ gro. $6.00
Pike Mfg. Co., 1901 list:
Black Diamond S. S., ₱ gro. $12.00
Lamoille S. S., ₱ gro. $11.00
White Mountain S. S., ₱ gro. $9.00
Green Mountain S. S., ₱ gro. $6.00
Extra Indian Pond S.S., ₱ gro. $7.50
No. 1 Indian Pond S.S., ₱ gro. $7.00
No. 2 Indian Pond S.S., ₱ gro. $4.50
Leader Red End S. S., ₱ gro. $4.50
Quick Cut Emery, ₱ gro. $10.00
Pure Corundum, ₱ gro. $18.00
Crescent $7.00
Emery Scythe Rifles, 2 Coat, $8
Emery Scythe Rifles, 3 Coat, $10
Emery Scythe Rifles, 4 Coat, $12
Balance of 1904 list 33⅓% } 33⅓%

Stoppers, Bottle—

Victor Bottle Stoppers, ₱ gro. $9.90

Stops— Bench—

Millers Falls 15&10%
Morrill's, ₱ doz., No. 1, $10.00 50%
Morrill's, No. 2, $12.50 50%

Door—

Chapin-Stephens Co. 40@60&10%

Plane—

Chapin-Stephens Co. 20%

Straps— Box—

Cary's Universal, case lots 25&20%

Hame—

Covert's Saddlery Works 60&10%

Stretchers, Carpet—

Cast Iron, Steel Points, ***doz.*** *60@60&10%*
Socket ***doz. $1.60***
Excelsior Stretcher and Tack Hammer Combined, ₱ doz. $6.00 20%

Strops, Razor—

Star Diagonal Strop 25%

Stuffers, Sausage—

Enterprise Mfg. Co. 25@25&7½%
National Specialty Co., list Jan. 1, 1902 30&5%

Sweepers, Carpet—

National Sweeper Co.: ₱ doz.
Louis XV, Roller Bearing, Gold Plated $120.00
Hepplewhite, Roller Bearing, Silver Plated $72.00
Sheraton, Roller Bearing, N'kel. $60.00
Ye Mission, Roller Bearing, Oxidized Coppered $36.00
Transparent, Roller Bearing, Plate Glass top, Nickeled $36.00
National Queen, Roller Bearing, Fancy Veneers $27.00
Loyal, Roller Bearing, Veneers, Nickeled $25.00
Triple Medal, Roller Bearing, Nickeled $24.00
Marion, Roller Bearing, N'kel. $24.00
Marion Queen, Roller Bearing, Nickeled $21.00
Monarch, Roller Bearing, N'kel. $22.00
Monarch, Roller Bearing, Jap. $20.00
Perpetual, Regular B'r'gs, N'kel. $20.00
Perpetual, Regular B'r'gs, Jap. $18.00
Monarch Extra (17 in. case), Roller Bearing, Nickeled $36.00
Monarch Extra (17 in. case), Roller Bearing, Japanned $33.00
Auditorium (26 in. case), Roller Bearing, Nickeled $54.00
Mammoth (30 in. case), Roller Bearing, Nickeled $60.00

NOTE.—Rebates: ***50c per dozen on three-dozen lots; $1 per dozen on five-dozen lots; $2 per dozen on ten-dozen lots; $2.50 per dozen on twenty-five-dozen lots.***

Streator Metal Stamping Co.:
Model E, Sanitaire, ₱ doz $25.00
Model A, Sterling, ₱ doz. $25.00
Model B, Sterling, Nickeled, ₱ doz. $25.00
Model B, Sterling, Japanned, ₱ doz. $21.00
Model C, Sterling, ₱ doz. $21.50
Model D, Sterling, ₱ doz. $19.50

Tacks, Finishing Nails, &c.

New List, May 1, 1905.

American Carpet Tacks 90&50%
American Cut Tacks 90&50%
Swedes Cut Tacks 90&50%
Swedes Upholsterers' Tacks 90&50&10%
Gimp Tacks 90&50&10%
Lace Tacks 90&50&10%
Trimmers' Tacks 90&5%
Looking Glass Tacks 65%
Bill Posters' and Railroad Tacks, 90&50&10%
Hungarian Nails 85%
Finishing Nails 70&10%
Trunk and Clout Nails 80&10%

NOTE.—The above prices are for Standard Weights. An extra 5% is given on Medium Weights, and an extra 10&5% is given on light weight.

Miscellaneous—

Double Pointed Tacks 90&6 *or* 7 *tens*
Steel Wire Brads, R. & E. Mfg. Co.'s list 50&10@60%
See also Nails, Wire.

Tanks, Oil—

	Each.
Emerald, R. M. Co. 30-gal.	$3.40
Emerald, R. M. Co. 60-gal.	$4.25
Queen City, R. M. Co. 30-gal.	$3.65
Queen City, R. M. Co. 60-gal.	$4.50

Tapes, Measuring—

American Asses' Skin 50@—%
Patent Leather 25@30&5%
Steel 33 1-3&5%
Chesterman's 25@25&5%
Eddy Asses' Skin 40&10@50%
Eddy Patent Leather 25@30&5%
Eddy Steel 40@40&10%
Keuffel & Esser Co.:
Favorite, Ass Skin 40&10@50%
Favorite, Duck and Leather 25&5@25&10%
Metallic and Steel, lower list 35@35&5%
Pocket 35@35&5%
Lufkin's:
Asses' Skin 40&10@50%
Metallic 30@30&5%
Patent Bend, Leather 25&5@25&10%
Pocket 40@40&5%
Steel 33⅓@35%

Teeth, Harrow—

Steel Harrow Teeth, plain or headed, ⅝-inch and larger ***per 100 lbs. $2.75@$3.00***

Thermometers—

Tin Case 80&10@80&10&5%

Ties, Bale—Steel Wire—

Single Loop 80&2½%
Monitor, Cross Head, &c. 70%

Brick Ties—

Niagara Brick Ties 25&10%

Tinners' Shears, &c.—

See *Shears, Tinners', &c.*

Tinware—

Stamped, Japanned and Pieced, sold very generally at net prices.

Tips, Safety Pole—

Cbvert's Saddlery Works 60&10%

Tire Benders, Upsetters, &c.

See *Benders and Upsetters, Tire.*

Tools—Coopers'—

L. & I. J. White 20@20&5%

Hay—

Myers' Hay Tools 50%
Stowell's Hay Carriers 50%
Stowell's Hay Forks 50%
Stowell's Fork Pulleys 50%

Miniature—

Smith & Hemenway Co.'s 25%

Saw—

Atkins' Cross Cut Saw Tools 40%
Simonds' Improved 33⅓%
Simonds' Crescent 25%

Ship—

L. & I. J. White 25%

Transom Lifters—

See *Lifters, Transom.*

Traps—Fly—

Balloon, Globe or Acme, ***doz.*** *$1.15@$1.25; gro. $11.50@12.00*
Harper, Champion or Paragon, doz. $1.25@1.40; gro. $13.00@13.50

Game—

Imitation Oneida 75@75&5%
Newhouse 40@45&5%
Hawley & Norton 65%
Victor 70&10%
Oneida Community Jump 50%

Mouse and Rat—

Mouse, Wood, Choker, doz. holes 8½@9¢
Mouse, Round or Square Wire, doz. 85@90¢
Marty French Rat and Mouse Traps (Genuine):
No. 1, Rat, each $1.21; ₱ doz. $13.25
No. 3, Rat, ₱ doz. $6.50; case of 50 $5.75 doz.
No. 3½, Rat, ₱ doz. $5.25; case of 72 ₱ gro. $4.70 doz.
No. 4, Mouse, ₱ doz. $3.85; case of 150 $3.00 doz.
No. 5, Mouse, ₱ doz. $3.00; case of 150 $2.25 doz.

Trimmers, Spoke—

Wood's E I 50%

Trowels—

Disston Brick and Pointing 30%
Disston Plastering 25%
Disston "Standard Brand" and Garden Trowels 35%
Kohler's Steel Garden Trowels, 5 in. ₱ gro. $4.80
Kohler's Steel Garden Trowels, 6 in. ₱ gro. $6.00
Never-Break Steel Garden Trowels.. ₱ gro. $6.00
Rose Brick and Plastering 25&5%
Woodrough & McParlin, Plastering 25%

Trucks, Warehouse, &c.—

B. & L. Block Co.:
New York Pattern 50&10%
Western Pattern 60&10%
Handy Trucks ₱ doz. $16.00
Grocery ₱ doz. $15.00
Daisy Stove Trucks, Improved Pattern ₱ doz. $18.50
McKinney Trucks each $10.00
Model Stove Trucks ₱ doz. $18.50

Tubs, Wash—*No. 1 2 3*

Galvanized, per doz. $4.25 4.75 5.25
Galvanized Wash Tubs (R. M. Co.):
No. 1 2 3 10 20 30
Per doz., net $5.70 6.30 7.20 6.60 7.20 8.10

Twine, Miscellaneous—

Flax Twine:	*BC.*	*B.*
No. 9, ¼ and ½-lb. Balls	*22@24¢*	
No. 12, ¼ and ½-lb. Balls	*18@20¢*	
No. 18, ¼ and ½-lb. Balls	*16@18¢*	
No. 24, ¼ and ½-lb. Balls	*16@18¢*	
No. 36, ¼ and ½-lb. Balls	*15@17¢*	

Chalk Line, Cotton ½-lb. Balls 25@30¢
Cotton Mops, 6, 9, 12 and 15 lb. to doz. 10@18¢
Cotton Wrapping, 5 Balls to lb., acording to quality 14½@20¢
American 2-Ply Hemp, ¼ and ½-lb. Balls 13@14¢
American 3-Ply Hemp, 1-lb. Balls 13@14½¢
India 2-Ply Hemp, ¼ and ½-lb. Balls (Spring Twine) 31½¢
India 3-Ply Hemp, 1-lb. Balls 31½¢
India 3-Ply Hemp, 1½-lb. Balls. 7@8¢
2, 3, 4 and 5-Ply Jute, ½-lb. Balls 9@10¢
Mason Line, Linen, ½-lb. Bls 46¢
No. 26 Mattress, ¼ and ½-lb. Balls 37¢
Wool, 3 to 6 ply B 6¢; A 6½¢

Vises—

Solid Box 60%

Parallel—

Athol Machine Co.:
Simpson's Adjustable 40%
Standard 40%
Amateur 25%
Columbian Hdw. Co. 40%
Emmert Universal:
Pattern Makers' No. 1, $15.00; No. 2, $12.50.
Machinist and Tool Makers' No. 4A, $12.50; No. 5A, $7.00; No. 6A, $10.00; No. 10A, $22.50.
Presto Quick Acting 25@25&5%
Tiger Machinists' 40%
Fisher & Norris Double Screw 15&10%
Hollands':
Machinists' 40@40&5%
Keystone 65&5@70%
Lewis Tool Co.:
Adjustable Jaw 30%
Monarch 50%
Solid Jaw 50%
Massey Vise Co.:
Clincher 40%
Perfect 20%
Lightning Grip 20%
Merrill's 20%
Millers Falls 60&10%
Parker's:
Victor 20@25%
Regulars 20@25%
Vulcan's 40@45%
Combination Pipe 55@60%
Prentiss 20@25%
Sargent's 40%
Snediker's X. L. 33⅓%
Stephens' 33⅓%
Williamson Mfg Co, Double Swivel 40&5%

Saw Filers—

Disston's D 3 Clamp and Guide, ₱ doz. $30 25%
Perfection Saw Clamps, ₱ doz. $4.50
Reading 60%
Wentworth's Rubber Jaw, Nos. 1, 2 and 3 45&50%

Wood Workers—

Massey Vise Co.:
Lightning Grip 15%
Perfect 15%
Wyman & Gordon's Quick Action, 6 in., $6.00; 9 in., $7.00; 14 in., $8.00.

Miscellaneous—

Bignall & Keeler Combination Pipe Vise 60&10%
Holland's Combination Pipe 60@60&5%
Massey's Quick Action Pipe 40%
Parker's Combination Pipe:
87 Series 60%
187 Series 60&5%
No. 870 40%
Williamson Mfg. Co. Double Swivel Combination Pipe 40&5%

Wads—*Price per M.*

B. E., 11 up 60¢
B. E., 9 and 10 70¢
B. E., 8 80¢
B. E., 7 80¢
P. E., 11 up $1.00
P. E., 9 and 10 1.25
P. E., 8 1.50
P. E., 7 1.50
Dis. 15%
Ely's B. E., 11 and larger $1.70@1.75
Ely's P. E., 12 to 20 $3.00@3.25

Ware, Hollow—

Cast Iron, Hollow—

Stove Hollow Ware:
Enameled 55%
Ground 60%
Plain or Unground 65%
Country Hollow Ware, per 100 lbs. $2.75
White Enameled Ware:
Maslin Kettles 70%
Covered Wares
Tinned and Turned 40%
Enameled 50%
See also *Pots, Glue.*

Enameled—

Agate Nickel Steel Ware 40%
Iron Clad Ware 70&10%
Lava, Enameled 40&10%
Never Break Enameled 50%

Tea Kettles—

Galvanized Tea Kettles:

Inch	*6*	*7*	*8*	*9*
Each	*45¢*	*50¢*	*55¢*	*65¢*

Steel Hollow Ware—

Avery Spiders and Griddles 65@65&5%
Avery Kettles 60%
Porcelained 50&5@50&10%
Never Break Spiders and Griddles 65&5%
Never Break Kettles 60%
Solid Steel Spiders and Griddles 65&5%
Solid Steel Kettles 60%

Warmers, Foot—

Pike Mfg. Co., Soapstone 40@40&10%

Washboards—

Solid Zinc: ₱ doz.
Crescent, family size, bent frame $3.25
Red Star, family size, stationary protector $3.25
Double Zinc Surface:
Saginaw Globe, family size, stationary protector $2.90
Cable Cross, family size, stationary protector $3.15
Single Zinc Surface:
Naiad, family size, open back, perforated $2.65
Saginaw Globe, protector, family size, ventilated back $2.50
Brass Surface:
Brass King, Single Surface, open back $3.25
Nickel Plate Surface:
No. 1001 Nickel Plate, Single Surface $3.25
Glass Surface:
Glass King, Single Surface, open back $3.25
Enamel Surface:
Enamel King, Single Surface, ventilated back $3.25

Washers—Leather, Axle—

Solid 80&10@80&10&10%
Patent 90@90&5%
Coil: ¾ 1 1¼ 1¼ *Inch.*
10¢ 11¢ 12¢ 13¢ *per box*

Iron or Steel—

Size bolt 5-16 ⅜ ½ ⅝ ¾
Washers $5.70 4.80 3.50 3.30 3.10
The above prices are based on 5.70¢ off list.
In lots less than one keg add ½¢ per lb.; 5-lb. boxes add ½¢ to list.

Cast Washers—

Over ½ inch, barrel lots ***per lb. 1¾@2¢***

Weather Strip—

Flexible Felt—

Lined, per 100 ft., $2; $3; $4 40&10%
Moore's Unlined, per 100 ft., $2; $3; $4 50&10%

Wedges—

Oil Finish ***lb. 2.70@2.80¢***

Weights—Hitching—

Covert Mfg. Co. 40%
Covert's Saddlery Works 60&10%

Sash—

Per ton, f.o.b. factory:
Eastern District $27.50@$28.00
Southern Territory $20.00@$23.00
Western and Central Districts $23.00@$25.00

Wheels, Well—

8-in., $1.55; 10-in., $2.00; 12-in., $2.50; 14-in., $4.00.

Wire and Wire Goods—

Bright and Annealed:
6 to 9 80%
10 to 18 80&2½%
19 to 26 80&7½%
27 to 36 80&2½%
Galvanized:
6 to 9 75&5%
10 to 14 75&7½%
15 to 16 72½&10&2½%
19 to 26 75%
27 to 36 72½%
Coppered:
6 to 9 75&5%
10 to 14 75&7½%
15 to 18 72½&10&2½%
19 to 26 75&10&5%
27 to 36 75%
Tinned:
6 to 14 75&10&2½%
15 to 18 75&7½%
Annealed, Steel and Tinned, on Spools 70&10&10@70&10&10%
Brass and Copper on Spools 60&5@60&10&5%
Brass, list Feb. 26, '96 15%
Copper, list Feb. 26, '96 25%
Cast Steel Wire 50%
Wire Clothes Line, see Lines.
Wire Picture Cord, see Cord.

Bright Wire Goods—

List June 24, '03 90&25@90&30%
Brass Cup Hooks and Brass Screw Hooks 85&10%

Wire Cloth and Netting—

Galvanized Wire Netting 80&5@80&10%
Painted Screen Cloth, 100 ft., $1.10
Standard Galv. Hardware Grade:
Nos. 2, 2½ & 3 Mesh, sq. ft. 3¢
Nos. 4 and 5 Mesh, sq. ft. 3¼¢
No. 6 Mesh, sq. ft. 3½¢
No. 8 Mesh, sq. ft. 4¢

Wire, Barb—See *Trade Report*

Wrenches—

Agricultural 75&10&5@80%
Alligator or Crocodile 70&10@75%
Baxter Pattern S Wrenches 70&5@70&10%
Drop Forged S 45@45&5%
Acme 60&10%
Alligator Pattern 70%
Bull Dog 70%
Bemis & Call's:
Adjustable S 40%
Adjustable S Pipe 40%
Bemis Pipe 60%
Briggs Pattern 40%
Combination Black 40&5%
Combination Bright 40%
Merrick Pattern 50%
Boardman's 40%
Coes' Genuine Knife Hdl. 40&10&5&5%
Coes' Genuine Steel Hdl. 40&10&5&5%
Coes' Genuine Key Model. 40&10&5&5%
Coes', Genuine Hammer Handle 40&10&5&5%
Coes' "Mechanics'" 40&10&10&5&5%
Donohue's Engineer 40&10%
Eagle 50&10%
Elgin Wrenches, ₱ doz. $6.25
Elgin Rethreading Attachment, one die, ₱ doz. $8.25
Elgin Extra Dies, ₱ doz. $3.00
Elgin Extra Jaws, ₱ doz. $1.75
Elgin Monkey Wrench Pipe Jaws, ₱ doz. $2.10
Gem Pocket 70%
Hercules 70%
W. & B. Machinist:
Case lots 50&5%
Less than case lots 50%
Solid Handles, P., S. & W. 50&10@60
Stillson 65%
Vulcan Chain 50%

Fruit Jar—

Triumph Fruit Jar Wrench, 5 gross lots, ₱ gross, $7.50; ₱ doz. $0.80

Wringers—

Tuttle Roller Press Mop Pail Wringer, each, $8.00; ₱ doz. $48.00

Wrought Goods—

Staples, Hooks, &c., list March 11, '02 90@90&10%

Yokes, Neck—

Covert Saddlery Works, Trimmed 70%
Covert Saddlery Works, Neck Yoke Centers 70%

Yokes, Ox, and Ox Bows—

Fort Madison's Farmers' & Freighters' list net

Zinc—

Sheet ***per 100 lbs., $8.00@8.25***

For the Table of "Current Metal Prices" see the First Issue of Every Month.